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ABSTRACT

Proceedings of the eleventh international conference on improving university teaching are presented. Theme presentations and authors include: "Quality Control in Higher Education: Current Issues in Britain" (Gerald T. Fowler); "Quality Control in Higher Education: A Comparison of Current Issues in Three Countries--The Case of Sweden" (Lennart Levin); "Institutional Approaches to Academic Improvement" (Robert M. Diamond); "How Universal Is Post-Secondary Education? A Look at Intercultural Differences" (Lewis Elton); "Academic Stress: Research Findings on Coping" (Arye Perlberg); and "Academic Stress: Research Findings on Causes" (Peter Seldin). Seminar papers and authors include: "Improving the Teaching-Learning Process through Simulation Laboratories Utilizing Multiple Sources of Feedback: A Norwegian Case Study" (A. Perlberg, Han Gunnar Auganes); and "International Evaluation: Preliminary Report of User Acceptance of International Electronic Document Delivery System" (Roger G. Baker, John Hurley). Also included are opening/closing papers and a symposium paper: "The Medieval University Faces High Technology" (Barbara W. Newell); "Understanding and Reaching Adult Learners" (Nancy K. Schlossberg); and "Ten Principles of Learning Revised in Accordance with Cognitive Psychology: With Implications for Teaching" (Stephen F. Foster). (SW)

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# Improving University Teaching

# Proceedings

# Eleventh International Conference

**July 2-5, 1985**
**Utrecht, The Netherlands**

Under the auspices of
The University of Maryland
University College
and
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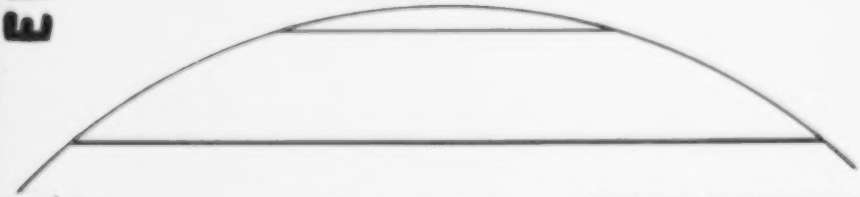

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# THE MEDIEVAL UNIVERSITY MEETS HI-TECHNOLOGY

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Professors claim inspiration from the agra. Our academic robes come from the monasteries. In the States we describe the western academic traditions in the vocabulary of the frontier by saying: "All one needs for a university is a log with a student at one end and a professor at the other". Do these traditions provide us with the models and the teaching technology for the future? The answer lies in how one sees that future.

Let me start with my crystal ball, however faulty, to project things to come. And then speculate about the impact of this future on undergraduate teaching.

I don't know whether it is because I am from the frontier State of Florida, or because I am an economist, but I believe the old saw, when examining the future, that the long run is made up of a series of short runs. Today, even the short run is bringing change at a gallop. Basic to this change is a fundamental shift in western economics to knowledge-based industries. Information is the new raw material to be exploited. The future economic well-being of our countries is dependent upon our ability to use information effectively. Citizens, legislators and education commissioners are beginning to recognize as never before that their nation has a stake in the quality of education and research and in the number of highly trained persons in the work force. The rapid internationalization of high-tech industries has shaken national complacency and put the fear of the market behind the focus on higher education.

The implications of this move are far reaching. In the U.S. the educational programs of business and the military have expanded significantly to develop the technically trained work force they need. Business allocates more money for education and training than is spent for higher education in all fifty states combined. We now have McDonald's University of hamburger fame providing a broad education program on their own campus. Wang Computer Corporation offers master's degrees, the Bell and Howell Corporation has set up for-profit technical schools. The Defense Department spends $319 million on education.

Only about 1/3 of the organized learning opportunities for adults are found in traditional educational institutions. The basic questions of who does the teaching and who does the learning are up for debate. Why this expansion of adult education? Why this entry of the military and business institutions into the field of education?

The average person in the U.S. changes jobs 7 times in a lifetime. Yes, traditional degree programs, but also conferences, short courses, tutoring--both directed and independent, are tools for each transition. I define these as continuing education, and a major reason for the adult education boom. Even if individuals don't change jobs, jobs change. The coming of computers has forced most professionals from accountants to humanists back to class. Lawyer's workshops may be in part the product of tax laws, but they are also a sign of the fast evolution of the field. Telephone mini-courses for doctors would never have come into being if the expansion of new knowledge were not so great. The teacher certification program

has a continuing education component built within it. I could go on--profession after profession.

The knowledge base of jobs is changing and the process used for doing the job is changing. With the information explosion and most western countries moving toward the knowledge-based industries we can expect continuing education demands to accelerate.

What do I see in the future? What has been in the past considered continuing education will become "the university." I see not only an expansion of the concept of lifelong learning, but the conscious commingling of education and work. The very structure of education is changing. Two out of every five students in the U.S. are over the age of 25 and fewer than three in five are attending college full-time. In Florida the majority of our students are part-time.

Another way of describing part-time students is to say they are mixing work and study -- even full-time students mix work and study whether informally for financial support or with official work-study and co-op programs. There is now talk of expanding co-op programs to high school so that students can gain knowlege of the workplace, alternative job opportunities, and job disciplines at the same time they spend time in a more formal setting to perfect skills basic to other learning and living. We are moving toward some of the European vocational programs.

This mix of work and education in both high school and college sets the pace for a lifetime of coming in and out of the educational setting. If not overdone, the mix is good for student motivation and to help students and schools make the

rapid changes needed in skills learned as technology shifts radically. Inflation and the high cost of education reinforces the work/study intermingling. The increase in the importance of credentials in the workplace has forced many back to school as part of job upgrading.

Changed patterns of life, particularly the influx of displaced homemakers in education, has significantly changed America's student population. The present move in society to "do it yourself" and "take command of your life" reinforces lifelong education. For example, in the field of medicine, to "know your body" requires an enhanced knowledge base. Nutrition and physical fitness courses are the rage. The earth watch movement is an expansion of one's knowledge, so that one's energy can be directed to a specific objective. We've just scratched the surface of education as an enhancement for retirement. America is experiencing the "graying" of our universities. In sum, today and in the future, there is no final degree, no completion of eduction.

As the demands for continuing education rise, the forms and institutional arrangements change--or at least they had better. In America social organizations and football, which used to form the core of student life, do not provide a sense of belonging to the "new" student. New locations and hours for teaching, and different personnel for assisting students are needed to provide support for the new student.

I noted earlier business and private associations are stepping up to the demands of the new student. Helpful partnerships across sectors are being formed and varied modes of

educational delivery developed. I fear the university community may be the least flexible and so we may find significant educational programs taken over by others or left undone.

The student population is changing, not only in age and the timing of education, but also social and ethnic characteristics. The ability of education to be inclusive, particularly in the era when education controls the ability of an individual to enter the economic mainstream will affect the social and political stability of a nation. In the U.S. we push to fully integrate the Black and Hispanic into the mainstream. In Germany it is the Turkish, and in France the Algerians, all nations are experiencing the changing role of women.

Who is taught is changing, so also is what is taught. The University community more than any other should be conscious of the impact of the knowledge explosion. Its implications for the programs and planning of educational institutions are mind-boggling. As an example let me take just one tool, which is in the process of affecting all disciplines of the academy--the computer.

I had the good fortune of sitting on the University of Wisconsin committee to design a computer utility for the State of Wisconsin in 1965. Fifteen years later, our proposal seems outrageous. As a matter of fact, I recently saw its counterpart enshrined in the national Smithsonian museum, along with Whitney's cotton gin and Ford's Model T.

In planning for computers, one of the hottest debates relates to what is the appropriate life expectancy of one generation of computers. The tool is becoming exponentially

powerful with each technical advance. Not only is the device changing, but more importantly, the tool is changing the fields to which it is applied. As we think of the computer revolution, most discussion is dominated by the hard sciences, but the fields of the social sciences and humanities have also changed radically. Take, for example, anthropology, where the ability to handle large quantities of data has changed methods of gathering evidence, analysis, and theory. Yes, linguistics and political science, as well as physics and engineering, have fundamentally changed because of computers.

The computer has not only changed fields, it has also created new areas of study. Departments of computer science have also been established, and high on the community's agenda are, and shall continue to be, the discussion of social policy issues brought by computer use, such as the rights to privacy and ownership of data. All institutions in the community are struggling with the implications of the coming of computers to education. We know the future will include the computer. How to organize our budgets, curricula and facilities to accommodate this future, is the challenge.

Change brought by computers is not the only change we are seeing. The knowledge explosion is reshaping fields of study. The discipline lines between physics, chemistry and biology have become so blurred as to reshape graduate study. Biochemistry has come into its own. The plate theory has changed the basic premise of geology.

While fields change radically, students and student enrollment patterns have exhibited equally dramatic shifts. In the U.S., business, law, and engineering have replaced liberal arts and education majors.

In summary, to predict the future when students, student choices, fields of study, and tools used are shifting radically, is more precarious than making love in a hammock. But impossible as it is, universities have an obligation to the larger community to position themselves as rationally as possible for the future. How do we meet this increased demand for more and better educated students; demand for continuing education; demand for new and changed fields? How do we provide this knowledge of sophisticated technologies; education for an enhanced life; education for full participation in society?

The way we meet these needs is with great difficulty for there are some economic and academic pressures working against the academy.

(1) Inflation and the push for increased numbers of educated students results in the decline of resources available per student.

(2) The most important impact of increased demand and decreased dollars per student has been the loss of salary dollars for faculty compared to other professions, resulting in a decline in the ability of academe to attract the best and the brightest to teaching. America, at least, is losing its teaching force.

(3) In the sciences there is a significant drain of intellectual efforts from teaching to research--both within the university and from the university to industries. Universities and industries must learn to share personnel and facilities to help alleviate shortages of professionals and assure the next generation of researchers.

Beside these market factors the future promises to challenge teaching ability as never before.

(1) The very push on quality underscores teaching competency. When and where measurable results are required, there is an increasing emphasis on teaching by objective.

(2) The new knowledge industry demands creativity. If the educational environment is to help nurture creativity, teaching must be increasingly sensitive to this need. What does research say about teaching creativity? Some of the cardinal principles are:

a) There must be individual involvement in learning process;

b) the independence of the student in the learning process should be stressed;

c) a student needs to learn to think as a professional--and to gain a sense of professional self-confidence;

d) finally, I would predict--the more creative students will have a broader, interdisciplinary training, which exposes them to different ways to look at and solve problems.

(3) In addition to increasing quality and creativity, the new industrial order also requires that we provide this improved education to greater numbers. If participation is to increase greatly, curricula must be sensitive to the needs of students of diverse backgrounds.

What does research stress about the education of women, blacks, other ethnic and national groups? How do we get this knowledge incorporated in the classroom? Research says role models do make a difference: women are more likely to use their education if they have studied under women professionals during their educational experience. Sex biasis by discipline change as one crosses international borders. Black professionals in the U.S. come disproportionately from the historically Black schools.

How do we change the academy to assure role models and to meet the needs of the expanded student population? Knowledge of guidance and retention procedures need to be put in place. (This discussion makes me think of the old saw--about the farmer "who don't need no more research for he is already not using all he knows".)

(4) The new economy will be more internationally trade-oriented than ever. A stress on multi-cultural education is becoming an economic necessity even for the U.S.--the country which appears the slowest to recognize the need for the study of foreign language and culture. If we truly internationalize our curricula we will not only meet economic needs, but will also ease inclusiveness of our diverse ethnic population, assist in the process of education for creativity, and create a more informed citizenry.

Which leads to my last point:

(5) The need for the examined life, to state the case positively. Increased leisure places greater demands on education and provides opportunity for an enhanced existence. To state the negative. Values and culture are in crisis where violence and drugs are rampant and the family structure is in disarray. The stakes are high for inclusion of all within the charmed circle of education and its examination of values. Through inclusion we help preserve that which is of value from the past and develop the knowledge needed to meet the demands of the future.

Perhaps above all else education is our principal avenue to understanding and peace.

# QUALITY CONTROL IN HIGHER EDUCATION: CURRENT ISSUES IN BRITAIN

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## INTRODUCTION

The problem of ensuring and of maintaining academic standards in higher education is currently the subject of much debate in Britain. Two separate committees have been examining what is known in British jargon as the 'validation' of degree courses. One, chaired by Professor Philip Reynolds, the Vice-Chancellor (= President) of Lancaster University, is concerned solely with courses in universities. The other, appointed by the Secretary of State (= Minister) for Education, and chaired by Sir Norman Lindop, former Director of Hatfield Polytechnic, reported in April on the system in what is known as Public Sector Higher Education.

This at once raises a difficulty for a non-British audience. What are the differences between a 'university' and a 'public sector institution,' whether the latter be called a 'Polytechnic' or a 'College of Higher Education'? I must stress that in respect of the standard of their degree courses there are none. The differences lie in (i) their mode of governance, (ii) the mechanisms through which they are supported in public funds, (iii) their aims and purposes, and (iv) the range of courses which they offer.

The Universities, of which there are 46, are self-governing entities, normally created by Royal Charter. They award their own degrees. All are supported by public funds (although to a

varying extent most also enjoy some private revenues), and these are disbursed by Central Government, upon the advice of the University Grants Committee (UGC). This latter body, seen as a 'buffer' between Government and the Universities, preventing political threats to their autonomy and academic freedom, consists mainly of eminent academics. While the Government has the final say on the total sum available for the Universities, the UGC's advice on its distribution is normally equally final, although the Secretary of State may (and increasingly does) give a broad 'steer' on the types of development he wishes to encourage or discourage. All Universities have substantial research as well as teaching programmes. Almost none today run courses for qualifications at below the level of the first, or Bachelor's degree, although many have programmes of short and extra-mural courses, not normally leading to a qualification.

The major institutions in the Public Sector are the 30 Polytechnics. They are in the main owned by Local Education Authorities (LEAs) of which there are 96 in England and 8 in Wales. (There are no Polytechnics in Scotland, and the only one in Northrn Ireland has now merged with a University). In theory, these Authorities also 'maintain', that is, fund them. In fact, a very small proportion of their finance comes from strictly local sources, the largest element being distributed nationally on the advice of a committee called the National Advisory Body for Public Sector Higher Education (NAB), which consists of representatives of both Central and Local Government. They have a wider range of courses than the Universities, stretching from postgraduate and doctoral work at the top to two- or three-year

Diploma and Certificate courses, although as in the Universities the majority of their students are studying for first degrees. Their research is commonly of an applied or practical character. So too are most of their courses and it was the desire of the then Government to counterbalance the Universities with more vocational institutions which led to their creation in the late 1960s.

Beyond them lies a range of other smaller institutions, most of them also maintained by LEAs, and many with only a few higher education courses surmounting a spread of less advanced work. A few colleges receive support directly from Central Government (the voluntary Colleges, mainly Church foundations), and in Scotland the Central Institutions, unique to that country, and a few of them very like English Polytechnics, are funded solely from the source.

This may seem a confused and a confusing system. Common however to all of these non-University institutions is that hitherto their degree courses have been validated, that is, certified as of the appropriate standard and quality, by external agencies rather than by themselves. In the case of a few colleges the agency is a local University. Most colleges, including all of the Polytechnics, look to the Council for National Academic Awards (CNAA), the task of which is to ensure that such degrees are of the same standard as the average university degree.

Most English and Welsh Bachelor's degrees are in a single subject, or at least in not more than two. Scotland has a different tradition in its older universities, three years of

broader study leading to an Ordinary degree, with a further specialists year needed for Honours. More recently there has been a growth in other patterns of study, some aiming at greater breadth ('modular degrees'), and others at the development of competence or capability by drawing upon the perspectives of several separate disciplines, of which my own Polytechnic's Degree by Independent Study is perhaps the best known example.

The myth persists that all British Bachelor's Degrees with Honours are of the same standard. I call it a 'myth' for two reasons, and neither is intended to suggest that there is not a substantial element of truth in it. The first is that it is clearly difficult to attach a precise meaning to the statement that a degree in Mechanical Engineering is 'of exactly the same standard' as a degree in English Literature. The demands of the disciplines differ radically, not in respect of level of difficulty, but in respect of the corpus of knowledge it is necessary to master and the modes of manipulating it. The second is that in every human society 'myths' are potent. What groups perceive as a reality which has always existed (even if this perception will not stand logical scrutiny), or see as an ideal which must never be questioned, largely determines their actions. This myth thus helps to explain the fierce determination in British academic circles to maintain the standard and quality of degree education and of the examination system.

The University System

The British Universities decide, each for itself, what course shall lead to one of its degrees, who shall pass or fail, and how those passing shall be 'classified' for Honours (First, Second, Third Class Honours etc). But this bald statement is misleading. A Board of Examiners will always include at least one external examiner, from another institution. The Code of Practice issued by the Committee of Vice-Chancellors and Principals (CVCP) states that "only persons of sufficient seniority and experience to command authority should be appointed normally, but not exclusively at professorial level." (N.B. The British professoriate does not include those who in the United States would be Associate or Assistant Professors). The only exceptions to this rule are the ancient Universities of Oxford and Cambridge, in respect of some of their first degree courses; this is because they are collegiate, so that there is an in-built guarantee that the majority of a Board of Examiners will never have directly taught any individual student they are examining, and are unlikely even to know him or her.

The CVCP also encourages external examiners to submit annual reports on the standard of the course as manifested by those examined, and to engage in regular discussion with those teaching it about its structure and content, and assessment procedures. No one pretends that this encouragement always results in action, or in adequate action. Some external examiners may not visit, except for the examinations themselves. Some reports may be perfunctory rather than thoughtfully constructive. Some

examiners take on too many commitments. Professor Reynolds will doubtless address these problems. But in general the system ensures that the senior members of the academic hierarchy are able to ensure broad parity of standards across the university system as a whole.

The effect of this interchange of expertise is reinforced by the transfer of staff, normally upon promotion, from one university to another. One worry occasioned by present financial constraints on higher education, and by the decline in the size of the 18/19 age-group and consequent cessation of growth in higher education, is that there are "promotion blocks," and less staff exchange. Slippage in quality through the boredom and carelessness which can follow upon stagnation is a possibility, although there is no evidence that it has yet occurred anywhere. The Government's "new blood" scheme, designed to fund the recruitment of fresh minds to the universities, seeks to ameliorate the problems of stagnation, but it is not universally accepted as adequate.

Within any university a further mechanism of quality control is the need to secure the approval of academic peers from other disciplines for new courses or syllabus changes. They may not be experts on the content of the syllabus they are judging, but they are jealous of the reputation of the institution and of their own courses, which may suffer if what is offered by other Departments is perceived as less than satisfactory. The normal system whereby most if not all Professors, as well as representatives of junior staff, sit on the university's Senate, or academic governing council, ensures the potency of per-group judgment.

Finally, there is another form of external peer-group control, arising from the network of professional bodies, institutions, and associations. Sometimes these may exert a direct influence, since a degree in certain 'vocational' disciplines - say, Engineering or Law - is of much diminished value if it is not recognized by the governing body of the profession as carrying exemption from some of its requirments en route to a 'license to practise'. More diffuse is the effect of the informal contact of academic staff with their fellows in the same discipline who teach or work elsewhere, through professional associations and looser subject networks, which spreads awareness of innovation and of good practice.

Three concerns remain, to two of which we shall return. The lesser is that some universities may not always be quite as meticulous about the quality of courses in other colleges which they validate as they are about that of their internal work. This is partly because they were not established as validating institutions, and are having to develop their mechanisms and procedures. It is partly for the related reason that their relationship with these colleges extended until recently to teacher education courses alone; it is the diversification of the colleges into other academic areas, a consequence of the fall in the school population, which has led to the widening of university external validation. The narrowness of this link, with few participants at the university end, may sometimes have led to an unhealthy intimacy. It is partly that the staff of the colleges are sometimes, for good historical reasons, not of the same calibre as those of the universities themselves, in respect

of their academic depth and their research record - which is no criticism of their teaching skills.

The second is that university processes of quality control normally take only indirect account of the standard of teaching - and that through the examining of students. The academic attainments and publication record of a member of staff are there for all to see. What happens in the class or tutorial may, on the British system, be as private as what happens in the bedroom. There is no tradition of training university teachers in classroom skills, nor of direct peer-group assessment of teaching ability, nor of student assessment. Granted the high average ability of students in a highly selective system, it is unlikely that their examination performance will always reveal mediocre or poor teaching, although it may show up the disastrously bad.

The final concern is simply - money. The British universities have resisted resource constraints in recent years by restricting intake of students, and by some rationalisation of provision, so that the 'unit of resource' (the cash available per full-time equivalent student) has fallen by only a few percentage points (2-3%). Nevertheless, there is evidence that non-human academic resource costs (e.g., books, journals and equipment) rise more rapidly in price than the general level of inflation, partly because of the constant steepening of the curves on the graphs of the expension of human knowledge and of its applications. The present Secretary of State was reported as shocked by some of the equipment deficiencies of the Imperial College of Science and Technology of London University, which has a high international reputation. The law of the maintenance of

quality may be that it is necessary to spend over more to ensure the same standard of education for the same number, relative to the sum total of valuable human knowledge.

The Public Sector

In the public sector the boundary between the Council for National Academic Awards (CNAA) and the Business and Technician Education Council (BTEC) falls at an odd point. The Diploma of Higher Education (broadly, liberal and social studies) is validated by th CNAA, and the Higher National Diploma (in general, technical and vocational education) by BTEC. The courses are in effect at the same level. Why then different validating bodies? The explanation is that technical education developed first, and its validating bodies have always been responsible for both higher education courses and those at a lower level. This was not the case with non-technical courses below first degree level, nor for any degree courses, technical or otherwise. The CNAA is thus responsible for all public sector degree courses, but for sub-degree courses only in non-technical subjects. It is quite illogical - but it is perhaps very British.

The external validation system relies heavily on the expertise of the public sector as a whole, and to a decreasing extent on that of the universities, teachers and scholars passing judgement on courses at institutions other than their own. It is an efficient means of checking the quality and quantity of the resources (including human resources) available for a course, and for examining its syllabus and more broadly the curriculum of the

department and the institution where it is located, as a whole. What it cannot do is to examine effectively the outcome of the course. Here again institutions rely, as do the universities, on external examiners. The expense of external validation, normally preceded by a rigorous process of internal validation, allied to the cost of external examiners, appears to be about 6 to 7% of the total cost of running a degree programme lasting three or four years.

The cost of the system is one of the reasons why the Lindop Committee has recently recommended a relaxation of the rules, to permit the most 'mature' public sector institutions the same freedom as British universities enjoy in self-validation, subject to the scrutiny of external examiners. Other institutions may be 'accredited', meaning that they and their internal procedures will be subject to external scrutiny every five years or so - but scrutiny of the institution, not of its individual courses. The verdict of the Secretary of State on these proposals is awaited, but in the meantime there can be no doubt that some institutions are cracking under the strain and the cost of the external validation system. The cost of being seen to maintain standards may be necessarily high, but one has to ask whether it can ever be allowed to be so high as to jeopardise just those standards, by the diversion of resources. The University and the PSHE systems come together in the approval of courses leading to a 'licence to practice' by the appropriate professional bodies, such as the Central Council for Education and Training in Social Work, the Health Visiting Council, The Royal Institution of British Architects, the several Engineering Institutions, and the

like. Their criteria of judgement are not always exactly the same as those of the academic validating bodies, because they are concerned primarily with the capability of the ex-student to practise, and of course with the safety of the public. It is however believed that some of them are on occasions old-fashioned in their approach, displaying a greater concern with restriction of entry to the professions (for salary reasons) than with the extension of access to higher education. There is no doubt that they exercise a greater influence in the Polytechnics than in the Universities, because of the more vocational character of the former, or that their influence leads to homogeneity of courses and parity of standards.

The National Advisory Body (NAB) and the University Grants Committee (UGC)

The NAB is working towards a formulaic equalisation of resource distribution between public sector institutions, by reference to the target student numbers they are given, weighted by the subject and mode of study. This approach seems to disregard some elements of need (e.g., historic buildings, scattered sites, poor physical or social ambience). Except in respect of some small specific grants, it also seems to disregard merit.

By contrast, the UGC has been at pains to maintain the 'unit of resource', if need be by reducing student targets, while at the same time differentiating between universities on the basis of the Committee's judgement of their respective merits. It has to be conceded that that judgement seems to be based primarily on the perceived quality of research rather than on that of

teaching. There is however a clear attempt here to promote and maintain quality, however circumscribed the view of what constitutes it.

Her Majesty's Inspectorate (HMI) and the Secretary of State

HMI, proud of the theoretical independence of the Department of Education and Science which appointment by the Sovereign gives them (and it is increasingly theoretical), are the principal guardians of the standard of process in the public sector, although at the level of higher education they are few in number and arguably deficient in respect of both the breadth and the depth of their academic expertise. Nevertheless, they also, through the regional offices of the Department, give administrative approval for new courses, normally by reference to their view of the likely demand for them. In respect of technical and business courses, this will often turn on a judgement of the employment potential of graduates from the course. They thus have a unique role. They advise colleges on what courses they should mount. They also approve, or do not approve them. They advise - and they consent.

The present Secretary of State also seems primarily concerned with process. His initial worries about the Polytechnic of North London (where there has been a recent inquiry into the handling of student political activities) seem to have arisen from doubts about the quality of teaching on the Sociology degree there. These were occasioned in part by an HMI report. Yet the course enjoyed the confidence of CNAA. The problem may be that CNAA look at syllabus, content, and

resources, while HMI look at quality of teaching, as they perceive it. The twain may not meet. Nor will the views of many members of the academic community and those of the present Secretary of State about Social Sciences, which he denies to be science and insists on calling Social Studies. This may be seen by some as a simple philosophical error about the nature of science, but there is certainly implicit within the view a qualitative judgement about the relative value of disciplines.

The Secretary of State is also bothered about standards in teacher education. He is undoubtedly right to be so. Unhappily, the proper cause of concern may well be the low salaries of school-teachers in Britain, and the effect of this on recruitment, rather than any serious failure of quality control in teacher education. Nevertheless, the Secretary of State has established a committee to investigate standards.

The Inescapable Pressures

There is an inexorable rise in the volume of the content of most courses of study, stemming from the progress of scholarship. In consequence, standards in many disciplines may be expected to creep slowly upwards, without anyone consciously intending this. Indeed, few British academics will allow the possibility. There is an equally inexorable pressure on resources. In Britain, Her Majesty's Treasury disposes, and the DES inevitably acquiesces. Sometimes HMI, exercising their statutory independence, protest about the effect on standards. It has little effect. It is at this point that the interlocking of academic networks, through the CNAA, or the system of external examining, or through the

professional institutions becomes potentially disturbing. It is not wholly irrational to believe that evidence of a marginal weakening of standards, at last by reference to the enhanced criteria for their maintenance set by the expansion of human knowledge, could sometimes be concealed by those who have every reason not to reveal it. When every institution is liable to cuts in resourcing, there must be some fear that no one will wish to draw attention to the mote in his neighbour's eye, for fear that next year his neighbour points to the beam in his own.

# QUALITY CONTROL IN HIGHER EDUCATION:
# A COMPARISON OF CURRENT ISSUES IN THREE COUNTRIES.
# THE CASE OF SWEDEN.

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## Background

To make the Swedish discussion of quality questions more intelligible, there are a number of characteristics of the Swedish higher education system which need to be passed in review. Sweden is a small country (with a population of just over 8 million) and its higher education system is utterly centralised by international standards. The university reform of 1977, it is true, was aimed at decentralising power and policy levers (funding) - it included, for example, the establishment of six regional higher education boards - but in spite of this and certain other measures, institutional autonomy remains limited. Financially, not least, there is a striking degree of central control - quite naturally, one might possibly add, because research and education are predominantly funded out of taxation revenue, which means that funds are distributed by the Government (the Ministry of Education) to universities and colleges. In this top-down flow of funds for research and education, the authority which I represent, the National Board of Universities and Colleges, plays an interesting - and delicate - dual role as the interlocutor of both Government and universities. To quote one example - from the research context - of the centralised nature of the Swedish system, the Government now publishes at three-yearly intervals a Research Policy Bill (the first of these came in 1982), the purpose of which is to define its research

priorities and to suggest fields of research which are considered of essential importance to the community. This document, of course, is not confined to the needs of the community for a certain kind of research; it also deals with the state of knowledge and competence in Sweden within the research fields judged to require strengthening. In this connection it is interesting to note that the two Research Policy Bills published hitherto have raised questions concerning the quality of research and have commented on the methods used by various faculties and disciplines in evaluating their own research; there has been no lack of critical opinions regarding both individual research councils and research fields within the universities. Although the same Bills emphasise that evaluation, and with it the quality of the research done, is the research community's own responsibility, it is interesting - and unquestionably symptomatic of the centralised nature of the system - that the Government should involve itself in this way in matters of quality.

To round off this background description of the Swedish higher education system, I should add that the university reform I mentioned earlier - known acronymically as U 68 - was logically aimed at improving the quality of Swedish higher education, even though it was more often - a great deal more often - described in egalitarian rather than qualitative terms. A new organisation of studies was introduced. A system of study programmes was established, aimed at making it easier for the individual student to achieve his educational objectives in the manner most appropriate to his aptitudes. (I will pass over the technical details of the system.) A new system of admissions and eligibility was introduced with the aim of making higher education available to new student categories: mature students and socially, economically and geographically disadvant-

aged students. The U 68 reform was also aimed at making higher education more work-related and internationalised. As stated above, several of the ostensible purposes of the reform were social and egalitarian rather than being concerned with promoting the quality of education and research. Quality, it seemed, consisted in the social good of (nearly) everybody gaining access to higher education. In connection with previous reforms of the Swedish school system, reference was sometimes made to the "total yield" of the system as a kind of qualitative target, and perhaps it was thought that the quality of the reformed Swedish higher education system could be measured in roughly the same way.

Musings on quality

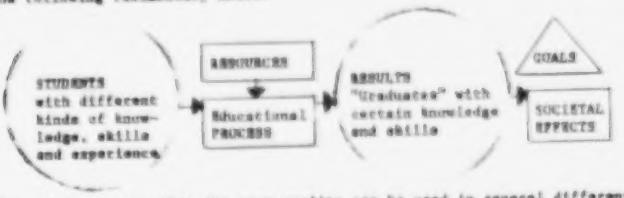
Although quality, in a more general, almost philosophical sense, may be said to be single and indivisible, the advisable course would seem for research quality and educational quality to be discussed separately.

A. The quality of education

If a discussion of educational quality is to serve any useful purpose, it must include definitions of the respects in which quality is to be discussed and must indicate who is responsible for qualitative conditions thus interpreted. Quality as referred to in the debate on education has sometimes been concerned with the degree or quantity of knowledge possessed by persons completing a course of education, has sometimes referred to the quality of the actual teaching process, or again has referred to the quality of the educational system as a whole.

The discussion of quality has quite often emanated from the description of higher education in terms of a production process. An approach of

this kind is, of course, open to criticism. It may be considered excessively technical and rational to be serviceable in educational contexts, where a great deal of influence is exerted by such factors as research environment and the attitudes of teachers and students. There is, indeed, a world of difference between higher education and a manufacturing process, but with all due reservation for the lack of comparability between the two, perhaps we can still derive some assistance from the following rudimentary model.




The model suggests that the term quality can be used in several different senses. In the Swedish debate it is commonly used with reference to the various qualities possessed by students when they emerge from higher education, i.e. quality is used to express the standard or level of knowledge, skill, critical acumen etc. possessed by persons completing the education. Viewed in these terms, quality refers to the "product quality" of the educational process.

Another part of the debate on quality is similarly concerned with various qualities possessed by the students at the commencement of their studies. The discussion here concerns the demands which should be made with regard to the knowledge and experience previously acquired by the students - their "initial quality" - and the extent to which these things influence the prospects of achieving good product quality.

It is natural that different aspects of the concept of educational quality should occupy the forefront of attention, depending on who is discussing them. Teachers and students talking about the quality of education are often concerned with the good or bad quality of teaching, achievement tests or the students' study habits. The "process quality" of education could be taken as a collective expression for the sum total of the qualitative dimensions of the educational process. In a sense, process quality is the yardstick of the ability of the educational process to develop the students in various respects.

Sometimes higher education is discussed in its total context, in which case quality often refers to the extent to which the overriding demands made by the community on the higher education system are satisfied. Quality in this sense is concerned with the higher education system as a whole - with its "systematic quality".

Relations between these various sub-qualities - product quality, initial quality, process quality and systematic quality - can be worth studying in their own right. No matter how good the process quality and product quality of the various study programmes may be, the systematic quality of the higher education system may be poor, for example if education is wrongly dimensioned or wrongly located in relation to the demand for graduates in the community at large. Conversely, no amount of accurate dimensioning and location in relation to the needs of the community and the individual can make up for the instruction itself being poor and, consequently, product quality unsatisfactory. Poor quality in one respect, then, cannot always be offset by high quality in another.

Not infrequently, educational planners tend to identify heavy resource inputs with good educational quality. This, of course, is an over-simplified, not to say misleading, way of looking at things. Figures concerning the resource input for education do not of themselves tell us anything about the quality of that education. If, on the other hand, it were possible to relate resource input to a yardstick of the results achieved, this would give us an expression of the efficiency of education, a yardstick which would tell us something interesting about the individual study programme and which could be used in comparing one programme with another.

Theoretically speaking, then, educational efficiency in the broadest sense could be defined as the relationship between a yardstick of the value of the social effects achieved and, on the other hand, a yardstick of the resources committed. "Social effects", however, are notoriously difficult to measure and evaluate. In many cases they do not become apparent until long after the event. Moreover, educational objectives are frequently expressed in vague and generalised terms and are not usually quantifiable.

The direct result of education in the individual programme is in itself a complicated product which, once again, is not amenable to straightforward measurement. This is because the "products" comprise a number of individuals who have attained different levels of knowledge, proficiency etc. The result of education, then, can be said to possess two dimensions. One of these is a quantitative dimension which, for example, can be stated in terms of the number of students completing the education - the number of "graduates". The other is a qualitative dimension expressing

"how good" the graduates are in various respects when they emerge from the education. It strikes me that Swedish educational planning and debate hitherto have been highly preoccupied with the former dimension. Quantitative measures of "through-put" in various educational programmes have been presented, analysed and challenged for a succession of years. It also strikes me that the quality of higher education has been regarded as virtually constant, the congenial assumption being that all those responsible for education have done their best to maintain the highest possible quality of instruction. Accordingly, the "number of graduates" has been used as a relevant yardstick of the quality of education. Although in certain situations a yardstick of this kind can be used in making rough comparisons between different study programmes, more qualitative indicators are probably needed in order to reveal causal relationships and enhance our understanding of the "internal life" of universities.

B. The quality of research

Research evaluation - and with it, questions concerning the quality of research - is a cherished field at present. As stated earlier, the Swedish Government has devoted a great deal of attention to the quality of research in a couple of Research Policy Bills. The various Swedish research councils, for example, can be said to have somewhat variable forms of quality control where self-financed research is concerned. For example, the Natural Science Research Council has made systematic use of peer reviews, mostly by international researchers, as a means of evaluating the quality - and usefulness - of research. This Council has deliberately earmarked part of its annual research budget for these activities and has to some extent been quoted as an example of the way in which

quality control should be conducted. It is interesting to know that in the field of medical research, Sweden has less frequently enlisted foreign expertise in the manner just mentioned concerning research in the natural sciences. Continuous quality assessment in conjunction with graduation, disputations, referee assessment of research findings, visits to international congresses, symposia, the consideration of applications for medical research project grants etc., is more widespread here. In a commentary to the Swedish Government, the Medical Research Council found good reason to declare that Swedish medical research was on very good international standing and that there was no need for foreign expertise to be called in to assess the projects which the Council funded (1).

In the humanities and social sciences, attitudes to systematic evaluations have, at least hitherto, been more reserved. A year or so ago the Ministry of Education called for "an evaluation in the more traditional sense, showing to some extent the outcome of activities funded by the Council for Research in the Humanities and Social Sciences". The Council replied on that occasion that "Evaluation is a question more easily asked than replied to". An evaluation of Swedish historical research, involving international peers, is now being started and similar plans are being made for a review of one of the social sciences. It may also be of interest to note that a group of international researchers is currently analysing research and the research environment at an interdisciplinary (thematically oriented) faculty of Sweden's youngest university, Linköping.

Other activities now underway in Sweden include what in my opinion is some interesting research on research, including a discussion of research evaluation questions and research quality assessment criteria.

In one project funded by the NBUC, for example, studies are being made of quotation analysis as a measure of scientific quality and of the peer review technique as a method of evaluating scientific work. The project has been made to include overviews of literature concerning what is now a very considerable volume of research in both these sub-sectors.

At the risk of simplifying and generalising the results obtained so far, I would like to mention the following. The quotation analysis expresses above all the extent to which a research input attracts the attention of other researchers. The extent to which quotations also reflect the quality of research is a moot point. The overview of literature compiled under the project shows that there are both "advocates of quotation", "reserved researchers", and critics of quotation analysis. The advocates argue that this is a useful yardstick because it has often proved to be closely connected with assessments of a subjective nature, that it is easy to use, inexpensive, fast, quantitative (cold figures) and objective (no personal acquaintance required). The critics argue among other things that quotation counts display different patterns for different fields and may therefore be ambiguous, and that small differences in quotation frequencies do not provide sufficient foundation for qualitative conclusions.

Peer reviews are a tempting proposition. Who can pronounce more accurately on a scientist's research findings than his colleagues? From an

intradisciplinary viewpoint, then, the peer review method seems to be of high validity. But the above mentioned overview of literature includes a number of studies clearly showing that assessments, e.g. assessments of project applications to different research councils, are frequently swayed by random, idiosyncratic factors. In this project, the overriding question concerning the extent to which research quality can be appraised receives rather a hesitant answer. If anything the conclusion is drawn that criteria for the assessment of scientific quality are contextual and, moreover, variable over time, which perhaps means that no definitive criteria exist.

Quality debate and praxis in Swedish research and education

The sole purpose of the above discussion concerning the measurement of quality in education and research respectively is to remind the reader of the diffuse content of the quality concept and of the difficulties involved in reliably evaluating the quality of education and research. I believe it can be salutary to remind ourselves of the purely computational complications at a time when, not least in Sweden, there is talk of a "crisis" of higher education. If it is repeated often enough, the allegation of crisis eventually becomes a self-fulfilling prophesy: the more the crisis assumes the guise of reality, the less reason there is to check the empirical foundation for allegations of its existence.

As regards the systematic quality of Swedish higher education, it is natural to make assessments with reference to the 1977 reform of higher education. How, on the whole, is Swedish higher education working today, eight years after the implementation of the reform? What sort of quality does it have? Recently a Swedish university vice chancellor, belonging

as it happened to the same political party as the present Government, was heard to say that the Swedish higher education system had been "flogged to death". His image of it is virtually that of a structural disaster; the vocational focus aimed for has deprived the universities of their role as guardians of culture and the search for truth; the "dimensioning" of higher education, i.e. predictions of national demand for students with a particular speciality, has gone unfailingly wide of the mark; the new organisation of studies, i.e. the new system of study programmes and courses of different kinds, has failed to produce appropriate educational routes, especially in the humanities and social sciences. The regional boards are an unnecessary bureaucratic intermediary; the new central system of admissions results in beginners with woefully inadequate previous knowledge being admitted to higher education. On top of all this misery the critical vice chancellor adds that facilities and equipment in many places are dilapidated and that rates of pay in the university community are too low ("What happens to the quality of higher education when our best teachers see their students going into industry and earning more than they do themselves?"). Basically, he recommends a quantitative reduction in order to maintain a high quality of education. Fewer students, higher initial qualifications, a better system of student finance, abolition of the regional boards, and direct funding of the universities, which should then be left to plan their own activities without any unnecessary red tape, are some of the measures he suggests in order to elevate the quality of the higher education system.

Replying recently to the vice chancellor's criticism, the Minister of Education argued that he had overshot the mark. In a situation where society and industry are looking for graduate labour, there can be no

question of reducing the student population, nor can the vocational and social dimensions of education be called into question. The jointly composed regional boards (two-thirds of whose members represent activities outside the universities) are important among other things as a means of furthering the interests of the smaller university colleges and enabling them to conduct educational activities within the region. Concerning various other points of criticism, the Minister says that Commissions have already been appointed to investigate.

What is the truth about the quality of higher education in Sweden? The exchange referred to above, of course, does not supply an answer to this question but rather illustrates that it is a question of (political) values. The conflicting verdicts are normative, i.e. they express what should apply in different respects to ensure the quality of the higher education system, rather than what has been scientifically or otherwise proved to be the case. Some of the "system components" mentioned above (the departmental organisation, the organisation of studies, the admissions system, examination procedures) have been a topic of studies, inquiries and scientific surveys ever since the higher education reform took effect, with the result that quite a large fund of knowledge has been accumulated concerning "systematic quality". The question as to the extent to which and the way in which that knowledge is utilised by policy-makers has in fact also been subjected to scientific analysis within HSUC research programmes. The author of the study sums up his observations in the phrase "The primacy of the decision process", thus indicating quite graphically that scientific findings are not the sole motive for political decisions.

Critical voices in the debate have also referred to the focus and quality of Swedish research. Recently, for example, a group of professors and writers signed an appeal claiming that the current shortage of resources had led to a narrowly utilitarian approach and that the pressure of orders from enterprise and public authorities was making researchers abject chameleons in their search for projects and grants. In such an environment, the argument goes, integrity, creativity, boldness and quality are inevitably doomed.

Sweeping generalisations of this kind are very difficult to cope with, at least where measurement and evaluation are concerned. The unsystematic observations underlying these allegations do, of course, have some form of reliability; their value - for continuing concern with matters of quality - lies perhaps in the very fact of critical statements being made.

As regards "process and product quality", if we may adhere to these terms, there are various aspects of the Swedish discussion which may be of interest.

The quality of Swedish doctoral theses has recently become a topic of heated debate, due mainly to a few theses of dubious quality having attracted the interest of the media. In this debate as well, the Swedish reform of higher education was held to blame for the alleged decline in quality. Several protagonists argued that Swedish theses were no longer so much in demand internationally as they had been and that this was partly due to the general decline in standards which had followed the reform. Naturally enough, the 800 or so approved theses published every year did not attract the same amount of attention from the media. Although, as far as is known, there have been no systematic surveys of the quality of Swedish theses, there would not seem to be any immediate cause for concern. If anything there is reason to suppose that the scientific community has not adjusted its demands in any direction as a result of the higher education reform.

A certain diversity of views can be observed concerning the purpose of a doctoral thesis. There are those who maintain that it constitutes a (quality) control, the purpose of which is to establish whether or not the postgraduate student has acquired a knowledge of scientific methods and techniques. A thesis, thus regarded, is a 'prentice exercise and should not be expected to advance the front line of research. Others maintain that the criterion of a thesis, at all events a good one, is its contribution of new knowledge.

Just as the thesis - "the product" - has been discussed in Sweden, the "process" - research training - has also been a topic of discussion and criticism. A publication by the NBUC, "Doktorand -82", indicated tuition deficiencies in several disciplines. At a conference recently on "Qual-

ity Control", a university vice chancellor put it this way: "Many subjects have no tuition worthy of the name. One can only hope that the professor will step to one side when a talented postgraduate student comes along".

How do you measure the quality of research training and how do you improve it if it is found to be bad? I believe the following opinion, recently stated by a professor of medicine, will be endorsed by many. Research training - like science itself - has its own culture. As long as the research community behaves "culturally" it must not be controlled (= disturbed) by any external agencies. "Fashionable" and "up-to-date" quality measurements, therefore, should be avoided. What, then is "cultural" research training? In it the postgraduate student is introduced to the alien culture (= the scientific discipline), he becomes a member of a research community, he is given real albeit limited problems to tackle, he is enabled to take part in a constantly ongoing critical discussion in which nothing is taken for granted and nothing is excluded, he is taught that good research is international and that one must publish in international journals. He and the professor present a common front at international conferences. Research training, then, is not a special "class" which he attends for a few years as a pupil; it is a fellowship into which he is immediately admitted. The abolition of marks for the thesis (as proposed in the course of the Swedish discussion) would be to falsify reality. Quality must not be neglected; disputations must be more than a pretence. These conditions stimulate the postgraduate student's curiosity, analytical powers and independence. As the professor of medicine put it, the result is "a decent thesis within a reasonable time".

This sympathetic description of perfectly functioning research tuition, and with it of the proper quality of research, is of course not without its problems. The criteria of "cultural behaviour" are not particularly clear, nor are any recommendations made concerning the steps to be taken when "cultural behaviour" can be said to be lacking.

In this connection I would like to add that only the other day, the Government of Sweden instructed the NBUC to carry out a "comprehensive review" of the problems of Swedish research training. This review, which is to be presented not later than 31st August 1986, will focus on (a) postgraduate recruitment and admissions, (b) the planning and conduct of studies, (c) intermediate qualification points in research training, and (d) the credential value of research training.

The quality of research hinges on the researchers' working conditions and working environment in the broad sense. In the Swedish debate, there has been criticism recently of shortcomings and abuses encountered by Swedish researchers, not least in the social sciences and humanities. Many departments are simply too small to be able to offer an active and stimulating research environment. Here again, the Government has instructed the NBUC to analyse the working environment of researchers, and to present and discuss various possible means of improving the situation (without any additional resources!). The assignment also includes quoting examples of research environments where things are running smoothly. Both these assignments entrusted by the Government to a national authority - the NBUC in this particular case - serve to illustrate the traditional Swedish model of influence and problem solving.

As regards the quality of undergraduate studies at Swedish universities and university colleges, there has been even more of a vulgar debate, with visions of a "crisis of knowledge" rooted in the higher education reform, than in the case of research education. The truth is that the initial qualifications and aptitudes of students vary a great deal between disciplines. Quite naturally, things are "better" in those subjects where there is a great deal of competition for places. This, however, is probably a universal phenomenon and not peculiar to Swedish higher education.

The 1960s and 1970s witnessed a drastic transformation of the actual concept of knowledge in Sweden (otherwise there would have been no need to launch anything so peculiar as an association for knowledge in schools!). Higher education has also felt the back-wash of this. During this period the debate on university pedagogics was dominated by expressions connected with working methods: needs orientation, participant control, group work, project work and so on. One positive outcome of this was the greater measure of student influence, the growth of educational activity and more tangible co-operation across subject boundaries. This working method, however, came to be used as a means of justifying greater laxity in auditing. A number of teachers have given in to pressure from students for group examinations, and in some cases this submissiveness has undoubtedly had a devastating effect on the quality of higher education.

The following passage comes from an HSUC publication on the quality of Swedish higher education (unfortunately available only in Swedish):

> "The most eager advocates of group examinations instead of individual assessment are those who are weakest and those who believe themselves to represent 'progressive' pedagogics and a non-competitive society. But if working methods become so collectivised that one cannot also resort to individual assessment to decide whether the result is acceptable, it is high time for the working methods to be reconsidered; we cannot afford a pedagogics which precludes individual assessment. Society is in fact entitled to demand certain definite results from an education which concerns not only the students but also taxpayers."

In Sweden as in other countries, "academic liberty" is sometimes used as a cloak for disregard of quality. At all events, many departments are averse to any scrutiny of their own examination and graduation routines. The Swedish university teacher is a relatively isolated person. Visits to colleagues to watch and learn from their teaching are more the exception than the rule. There is relatively little discussion of qualitative issues. Although nationwide examinations have been compiled in a few subjects and are still being used, national norms - not to mention international ones - are for the most part conspicuous by their absence.

The short length of time available for different items of study is one cause of poor quality, the lack of competence on the part of teachers is another. Poor in-house training in the higher education system and the

low status of education compared with research are other conceivable causes.

A Swedish researcher in the theory and construction of examinations has presented the following classification of graduation routines or, if you will, methods of quality assessment in Swedish university departments:

1. The period ending in 1965: the "unproblematical" period, characterised by an interest in essay questions and in weighted points for answers.

2. 1965-1973: the period of "objective" or multiple-choice examinations.

3. 1973-1980: the "anti-quantitative" period, distinguished by an interest in the teaching process and group examinations.

4. 1980- : tendencies to revert to a stricter control of graduation and greater concern with quality measurement generally.

There is something in this classification of graduation practice in Sweden, as witness for example a report published on behalf of the NBUC, which shows that the 1970s were a period of vigorous experimentation with different forms of examination. This period included everything from no examinations at all to every possible and impossible variety of group examination. Today, on the other hand, this experimentation appears to be waning somewhat.

There are indications that examination procedures in many Swedish university and college departments are bad and sometimes downright substandard. At a conference on "the internal work of higher education" at Umeå University in the autumn of 1983, for example, various examples were presented of inadequate examination, examples with which I shall not burden this account. A review of examinations recently set by one university teacher also revealed that students are frequently examined at what are commonly called the lowest levels in Bloom's taxonomy.

At this conference, the following "formula" was presented for an opening in the matter of examinations:

(1) Treat examinations as seriously as teaching and administration.

(2) Gradually intensify efforts in the examination sphere. Devote 25-30% of working time to examination (!).

(3) Tone down examinations.

Personally I would like to add a fourth recommendation: collect examination papers for auditing, analysis and discussion. Study the set reading with regard to up-to-dateness, language (Swedish/foreign) and pedagogical qualities.

Two suggestions for improving the quality of undergraduate studies have been put forward in the Swedish debate, both of them in fact modelled on international examples. The first is the suggestion of university inspectors (cf. England), though this has not yet gained acceptance. The

second concerns prizes for good teaching (cf. the Finnish prize for the "professor of the year"); these already exist, albeit on a modest scale, at a number of universities and colleges.

Conclusion

The purpose of my contribution to the IUT Conference has been to convey some of the current atmosphere of the Swedish debate on the quality of higher education and research. Perhaps my examples, like qualitative issues themselves, are so universal as to be international rather than national. What I believe, however, to be relatively unique Swedish characteristics are: (a) Scepticism of "élitism" and achievement-orientation, which has caused attention to focus on egalitarian rather than qualitative aims. I believe it would be virtually impossible in Sweden to introduce qualitative "league tables" of departments on American lines. (b) An insipient reassessment of this philosophy of higher education, partly on account of dwindling resources and a corresponding growth in demands for efficiency and quality. (c) The highly centralised character of the higher education system, one result of which is that the Government is now vigorously underlining its interest in the quality of research and education through the medium of assignments, allocations etc. to "subordinate" authorities, universities and university colleges.

## INSTITUTIONAL APPROACHES TO ACADEMIC IMPROVEMENT

Robert M. Diamond
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An Introduction to the Session

In this session, Marcel and I will be focusing on two campus-wide approaches to the improvement of instruction: one agency located within the central administration; the other operating from within an academic department.

Before we look at the two units, I would like to place them within the context of a change agency operating within a college or university. While postsecondary education has been around for some time, units of this type have not; and, as new entities in an older establishment, they face the problems of newer units everywhere. The problem of survival becomes particularly acute in times of stress or when budgets must be cut or new dollars found to support the growth of a more traditional unit. Not only are these new agencies vulnerable, but they will be forced to answer questions rarely asked of the more traditional academic departments and support agencies. Few, in periods of stress, will question the utility of dollars placed within a library or specific academic department. However, most faculty will question, in these same circumstances, the money placed in an agency they do not know or even care to understand.

An instructional or faculty development agency, therefore, must prepare for survival from the first day it is established. Long-term survival cannot be left to chance. This is done in a variety of ways.

It requires identifying the priorities of the institution...who are the key decision-makers and what is important to them? They may be administrators to whom the units report, other administrative offices, faculty groups, and key committees. What do these publics expect of the agency; what are they looking for if the units are to be considered successful? Are their goals reasonable? If not, what can you do to educate them? There is almost a one to one correlation between centers that did not do their homework and centers that failed. On several campuses, offices were actually voted out of existance by the faculty who perceived them as doing little to help them in their teaching. To assist in this process, we have designed a protocol that helps identify the criteria that decision-makers use and has been used on campuses to help generate consensus as to what the agency involved should be doing. When used with faculty development agencies, it was interesting how often we found the wrong data being reported and the wrong activities being stressed.

Once these priorities are identified, it then, and only then, allows you to pick those projects that will have the maximum potential of reaching the goals for which your agency has been established. Experience has shown that decision-makers look for tangible results: enrollment increases, decreases in student attrition, improvements in learning, better job placement of graduates, improved public relations, increased income, successful new programs, etc. Simply saying that more faculty were serviced is not enough!!

In short, projects and activities that are supported must

- meet the priorities of the institution
- meet the evaluation criteria of the decision-makers
- be cost effective
- have a good chance of success

In addition, it is crucial that the key decision-maker be kept informed. Again, survival cannot be left to chance. There is a direct and positive relationship between homework, impact, and survival. In these days of diminished resources, an agency that does not effectively meet the needs of those it is designed to service should not survive.

A Frame of Reference

Postsecondary or tertiary institutions face a number of common problems that must be overcome if they are to be successful. How, for example, do you meet the range of needs of a student population that is becoming increasingly diverse as you expand the population being served? How does one identify the goals of a program when the mission of the institution itself is unclear? How, in the process of implementing change, do you focus faculty efforts on teaching when rewards are associated more directly with publication and research? How can we improve instruction when major changes are required and we have fewer dollars and decreasing flexibility?

To answer these questions, we must begin with two assumptions. First, we cannot separate the academic program from the overall climate of the institution. If classrooms are dirty, the library is noisy, staff is rude or uncooperative, learning will suffer. Second, change does not happen by chance...it must be planned for and approached systematically. For quality change to occur, we require:

- top administrative support in both words and action;
- the resources needed in both support staff and funding;
- the support the academic units involved (chairmen and faculty);
- the involvement of the best faculty - those who have the required content expertise and who are respected by their

colleagues;

- a realistic reward system that supports involvement in course and curriculum improvement projects;

and

- looking closely at the students - who they are, why they are there, what they know, and what they need.

Finally, if we are to be successful, we must deal with large instructional elements, courses and curriculum. Experience on many campuses has shown that if you focus on any smaller, nothing will really change.

A Case Study - The CENTER FOR INSTRUCTIONAL DEVELOPMENT AT SYRACUSE UNIVERSITY.

Recognizing the problems that existed and the need for solving these systematically and on a campus-wide basis, Syracuse University, in 1971, established the Office of Assistant Vice Chancellor for Instructional Development and, with this office, the Center for Instructional Development. The Center was charged with working throughout the institution on the improvement of instruction by making maximum use of existing resources. It thus was established to support improvement rather than, as many other agencies were asked to do at that time, finding ways to maintain existing quality while reducing costs. To facilitate the availability of needed resources, also reporting to the Assistant Vice Chancellor were the various media support units at the institution. Within the Center itself were specialists in instructional development and evaluation, as well as support staff in graphics and printing and the clerical areas. It should be noted that while the Center has had significant impact, its budget and the size of

its staff has been modest, with less than $200,000 a year devoted to the development and evaluation functions.

To insure cost effectiveness, a series of specific operational guidelines have been followed since its inception:

1. An effort has been made to select those projects that are of high priority to the academic department involved or to the institution - problem areas, new curricula or courses, areas in which major growth is anticipated, etc. In addition, once a project was selected for support, this support is continued until the course or curriculum has been implemented and evaluated as being successful.
2. A systematic approach to course and curriculum design was followed...insuring that the necessary questions were asked at the proper time and that major decisions were based on as much data as possible.

   One of the factors that makes the Syracuse model different than most is that, in its early stages, it asks the participating faculty to think in the "ideal"...if they had the best possible program, what would it look like? We have found that this approach

   - tests assumptions about structure and time;
   - tests assumptions about content;
   - forces sensitivity to the needs and priorities of the student;
   - is challenging and exciting.

   We also find that what can be done is usually far closer to the ideal than most observers who have not used this model would anticipate.

In addition, the model that is used has several other important characteristics. It is politically sensitive, insuring that all projects have the support of key administrators, faculty, and faculty committees. By working with faculty teams whenever possible, it also helps insure durability over time since many successful projects on other campuses have died when the single faculty member involved was promoted or left the institution. In addition, working with a team provides a broader base for content decisions. To insure quality and efficiency, the model looks carefully at the students, the priorities of the program, and, if appropriate, data from alumni, employers, and recruiters.

3. Evaluation plays a major role in all projects. A professional evaluation staff not only assists in collecting the types of information needed during the design process, but is responsible for collecting data measuring the effectiveness of the new programs throughout the period of initial implementation and revision.

4. While all the various types of instructional media are available and utilized (ranging from programmed instruction and tape/slide sequences to television, computer-assisted instruction and interactive video), a specific approach is selected only after the problem being addressed has been clarified and all alternative approaches have been explored.

5. Finally, as mentioned previously, an effort has been made to focus on the larger, more significant instructional component, with the vast

majority of projects dealing with complete courses or entire curricula.

Impact

Today, it is almost impossible for a Syracuse University student to graduate from the institution without being impacted some way by the work of the Center. Working cooperatively with quality faculty, the Center has been involved in the design of new curricula, new courses, and in the revision of many existing ones. On the back of the handout sheet (attached), you will find a partial list of those projects that have been undertaken cooperatively. Represented in these hundred or so projects are almost every school and college of the University and activities at all levels of instruction. As a result of the Center's activity, new support programs such as the Academic Support Center (offering courses in Study Skills and a whole range of tutoring services) and the University's Running Start Program for entering students with potential academic problems have been established. Project Advance, the Center-developed award winning high school articulation program enrolls nearly 4,000 high school students each year in university courses. A direct outgrowth of the Center's efforts has been the implementation of Syracuse University's flexible credit and continuous registration systems that were developed with the Registrar's Office to permit greater flexibility in course design, self-pacing, and individualized instruction. The Center's efforts have led to greater use of the library and changes in the role of both faculty and students, as ways have been found to permit individualization and to increase direct student-faculty contact in large lecture courses. Perhaps most important has been an improvement in learning. Instructional objectives are being reached and the attitude of the students towards the subject area is greatly improved. For example, when a traditional four-course calculus

sequence was redesigned into a single 12-credit, self-paced program, we found that not only did the students perform significantly better in the new program but that the direct correlation between entry level math skills and achievement in the courses found in the traditional program was eliminated. Almost without exception, there has also been an increase in enrollment in the many courses or programs with which the Center has been involved.

To be successful, our academic programs must be sensitive to the goals, capabilities, backgrounds, and priorities of each student and to the skills needed for living in today's world. We must also make the best possible use of the resources available to us. While change is never easy, I am convinced that an agency such as the Center for Instructional Development established within the central administration of the institution and staffed with quality professional and support personnel, can not only have a major positive impact on an institution but that it can also help insure that we are providing each of our students with a quality educational program.

# SYRACUSE UNIVERSITY'S CENTER FOR INSTRUCTIONAL DEVELOPMENT

### A Systematic Approach to Curriculum and Faculty Development

Syracuse University's Center for Instructional Development was established in 1971 to collaborate with University faculty and departments in the improvement of academic courses and programs. Since its inception, more than one hundred projects (see examples on other side) have been undertaken. These range from the redesign of existing courses to the design, implementation, and evaluation of new curricula. Besides a general improvement in faculty and student attitudes, evaluation has indicated measurable and significant gains in student learning within those courses that were redesigned. Services are provided at no charge to departments, with the Center also providing funds to support faculty fellowships over the summer to work full time on priority projects. The Center, to insure the durability of the new programs, focuses on projects with maximum impact, projects that have broad-based support from their departments and involve teams of faculty. The Center, in cooperation with the Senate Committee on Instruction, recently received a grant from Lilly Endowment, Inc. to support new faculty in the improvement of instruction.

## ORGANIZATION

The Center comprises five units and reports to Assistant Vice Chancellor Robert M. Diamond, who also serves as the Director. Also reporting to his office is the University's Audio and Visual Support Services. The advantage of a centralized authority for these units is that, when course redesign is undertaken, it is a coordinated and comprehensive effort--an approach that avoids the dissipation of resources which is usually inseparable from piecemeal, haphazard change. The five units are as follows:

## DEVELOPMENT

Staffed by experts in instructional design, the Development unit asks basic questions, suggests alternatives, and coordinates the work of other Center units in an effort to assist faculty in the design of courses and curricula. The Developer tests faculty assumptions about the program and its content, assists in evolving a statement of educational goals (instructional objectives) and uses evaluation instruments to measure student learning and the teaching effectiveness of faculty and of instructional materials, etc. Once instructional goals have been defined, learning strategies are devised, teaching materials are developed, and course design is implemented.

## EVALUATION

This unit designs and conducts a wide range of evaluation and data collection activities (e.g., questionnaires, surveys, interviews, observation, program and course evaluations) which are used both to assist in the design of a program and to assess the effectiveness of programs, course materials, and instructors. The evaluator gathers data useful at every stage of the development process: helping to assess entering student needs and skills, designing tests for measuring student learning, constructing surveys and questionnaires for ascertaining student attitudes about the course, its materials, and its instructors. The Evaluation unit performs an analogous function for the Center itself so that CID can also change and grow as circumstances require.

## GRAPHICS AND PRINTING

The Graphics staff designs and produces instructional materials appropriate for implementing stated objectives. Materials include: programmed booklets, course manuals, slide/tape presentations, illustrations, and overhead transparencies. This unit also coordinates all CID printing and operates an electro-offset printing system complete with collating and binding. Computer-generated graphics are also available.



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## TESTING SERVICES

This unit assists faculty in test construction and provides test scoring and analysis services, as well as other data analysis procedures. Student rating systems are also available.

## PROJECT ADVANCE

The Center also operates Project Advance, one of the largest high school-college articulation programs in the country, enrolling over 6,500 students in 80 school districts in New York and neighboring states. The Project offers selected university courses to high school students for regular Syracuse University credit. These courses are taught by university-trained and supervised high school teachers as part of their regular teaching load and as a part of the students' normal academic program. Cited by the National Commission on Excellence in Education as a model school-college cooperative program.

## INDEPENDENT LEARNING LABORATORY

The multi-station Independent Learning Laboratory (a unit of Audio and Visual Support Services) is used to field test instructional materials which, once they are perfected, may then be transferred to the library or other locations. Students come to the lab to study materials that utilize various media, ranging from slide/tapes and video cassettes to self-teaching programmed booklets; they also have full use of microcomputers and computer terminals which enable students to practice simulations, various computational techniques and to use numerous computer programs. Sequences introducing various microcomputers are also available.

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### A Partial List of CID Courses and Curricular Projects

Key: (1) Major project, including materials development, full support (2) Financial and staff support, some materials development (3) Primarily staff support.

**Institutional**

A TA's Guide to Syracuse (1)
Career Planning & Placement Program-Needs Assessment (2)
Establishment of Academic Support Center (1)
Faculty Assistance Catalogue (1)
International Student Handbook (1)
Library Orientation to Computer Catalogue System (1)
Joint development with Registrar of Flexible Credit and Continuous Registration Systems.
Running Start Program (1)
Student Handbooks to the University's programs in England and Italy (2)

**College of Arts and Sciences**

American History 207 (2)
Biology Curriculum (1)
Calculus 295, 296, 297, 298 (1)
(PSI Courses)
Chemistry 115, 107, 116, 117 (2)
Classics 101 (1)
Core Curriculum (1)
English 101-102 (1)
Fine Arts 266-266 (2)
Geology 295-296 (3)
Honors Freshman English, Readings (3)
Mathematics 015-016 (1)
(PSI courses)
Mathematics Diagnostic Testing Sequence) (2)
SAS 295: Basic Study Skills (1)
Political Science 205 (1)
Psychology 206 (1) (PSI course)
Religion 105 (1)
Religion 295 (Evaluation) (3)
Sociology 251 (1)

**College of Law**

Advertising and the Law (1)
Legal Research & Writing (1)

**School of Architecture**

Entire first year of curriculum (1)
Architecture 235 (Architectural Problem Solving) (1)
Architecture 423 (1)
Environmental Design (1)
See also Gerontology Center

**School of Education**

Applied Phonetics (1)
Cost Effectiveness (1)
Cultural Foundations (1)
Physical Education (1)
Skill Core (16 credits) competency based testing program
(See College of Visual and Performing Arts for Music Education)

**College of Engineering**

Computer Organization (2)
Introduction to Digital Structures (2)

**School of Information Studies**

Information Studies 503 (core course) (1)
Information Studies 505 (3)

**School of Management**

Financial Accounting 601 (segment) (1)
Graduate Curriculum (1)
Management Information System Program (1)
Management Innovation Organizations (1)
MBA-Independent Study Degree Program (3)
Marketing (3)
(Co-recipient Sloan Foundation Grant)
Organization and Management (1)
Transportation & Distribution Curriculum (1)

**College of Nursing**

Adult Primary Care Nursing Program Evaluation (1)
Clinical Laboratory, Self-paced (3)
Nursing 104 (3)
Undergraduate Curriculum (3)

**School of Public Communications**

Communications 107 (1)
Television 360-Studio Production (1)

**School of Social Work**

Foundation Course in Gerontology (3)
Gerontology Concentration for Master's Degree (1)

**College for Human Development**

Drugs in Perspective (1)
Environmental Arts 125 (1)
Nutrition 225 (2)
Retailing 275-276 (2)

**College of Visual & Performing Arts**

Communications Design (1)
Drama 355 (1)
Music Industry Curriculum (1)
Undergraduate Music Education Curriculum (1)
Undergraduate Synaesthetic Education Curriculum (1)
Joint Sponsor of National Symposium on Curriculum Development in Music Education (2)

**Maxwell School**

Public Administration (summer academic program) (3)
Silver Summer Program (1)

**East African Studies Program (3)**

**Gerontology Center**

Architecture 540 (Environment for the Life Span)

**University College**

Basic Skills - Higher Education Opportunity Program (study skills, mathematics)*
Independent Study Degree Program (IDEA Project) (3)

*Note: This program and the materials won the National University Extension Regional Award.

10/83



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# HOW UNIVERSAL IS POST-SECONDARY EDUCATION?

## A LOOK AT INTERCULTURAL DIFFERENCES

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Note: This account is a slightly edited version of the talk which was given at the conference.

I would like to start by asking you a question. Who has taught in more than one country? About half. Good. Because until you teach in another country, it is obviously going to be difficult to appreciate fully the differences that may arise interculturally. Now having said 'obviously', I would like to contradict myself. It is far from obvious either that you will appreciate these differences then, or that you may not have appreciated them by only teaching in one country. It is the second point that I particularly want to stress, ie that the intercultural differences are not necessarily the same as differences between countries and I will come back to that in due course. In fact I would like to first of all raise the question as to whether the main differences are intercultural and so linking that point to the sub-title; and then to interpret the word universality in the main title in terms of three areas: the universality of knowledge, the universality of purpose in post-secondary education and the universality of admission to post-secondary education. I shall finish with a case study.

So the first question is: Are the main differences intercultural? What I am going to say is based quite a lot on the evaluated experience which my colleagues and I have had through working with people from many nationalities. As the Chairman mentioned, we have done work in distance education and some of you may have picked up our leaflet which gives a description of a course which we run world-wide in what is essentially the training of university teachers. From this we get a reflection of the perception that our course members may have of these differences. We also bring these teachers in higher education from many countries on to our campus for discussion courses. Finally, we travel a lot to a number of countries and run courses there. So the experience which we have has been particularly with faculty - with academics - in those various circumstances rather than directly with students. I would like to stress that one's first conclusion is one of a substantial similarity.

The other day I got a copy of 'XU News', which is the campus journal of Xavier University in the Philippines. If I hadn't known, I might well have thought it was an American newsletter, from an American university. The similarities to one who is not within the American system are very substantial. No doubt to an American the differences might become apparent. But the main reason for the similarities - and these to my mind are peculiar to higher education - is the all pervading European university tradition. Universities the world over look back to the universities of Bologna and Salerno, Oxford and Prague, as their begetters. There are consequently great similarities between universities and indeed throughout higher

education, although when we talk about more general post-secondary education this may not be always so.

Next I want to stress the point that the differences between various systems are partly due to their tradition and partly to their value systems and these are not the same. Value systems have a habit of changing more rapidly than traditions. So I must ask a question here: Are the main differences between cultures or within one culture? I'll come back to that in due course.

Let me now turn to the three universalities. The universality of knowledge, of purpose and of admission. First of all, universality of knowledge. Perhaps the bedrock for this is the idea of academic freedom. What the Germans call Lehrfreiheit und Lernfreiheit, the freedom to teach and the freedom to learn. This is firmly embedded in the culture of the universities world-wide but it very emphatically takes different forms in different countries and indeed within one country. Two particular points I want to refer to here are the status of different disciplines and the orientation towards real problems. As regards the status of different disciplines in different countries the academic hierarchy of disciplines is different and it cuts off at different places. In Britain, sociology only became respectable within the last 15 years and I would say that in the view of our present government it is time it stopped being respectable. When we turn to a discipline like Hotel and Catering Management, academics ask whether this is a university discipline at all and whether there is

knowledge there which is supposed to be taught at universities. The variety of disciplines which are considered to be respectable and which are considered more respectable than others are different in different countries. In Sweden and in Germany, engineering has a much higher standing than in Britain, where traditionally physics is considered the superior discipline. But virtually all universities put discipline above real problems. When knowledge is oriented towards real problems, it cuts across disciplines. No real problem ever requires only one discipline for its solution. Within the last thirty years in many countries, there have been attempts to produce problem oriented curricula, inter-disciplinary research and similar matters, and most of these have found it very hard indeed to establish themselves.

The difficulties that exist have an extraordinary similarity between countries and they often differentiate between institutions within one country rather than between countries. At that point I would like to stress that that is why I said at the very beginning that even if you have never left your country, then I think you will be able to detect many inter-cultural differences within the post-secondary education of your own country. In Britain there is a tendency for innovations in higher education to be fed in at the bottom. The very fact that there is a bottom of the hierarchy means that they are less effective. In the United States, much, though not by any means all of it, is fed in at the top and is more effective.

Back to academic freedom. The relationship within a country of its government to its institutions of higher education is a significant factor in academic freedom. The European universities, and here I exclude Britain, have had a long history of having to be aware of the desire of the state to interfere. It is about 150 years ago now since the 'Gottingen Seven' resigned their positions because the Elector of Hanover wanted to interfere and did interfere with the University. Those seven never got their jobs back and they included the brothers Grimm. With this kind of history, European universities have developed strong means of keeping a balance between government control and academic freedom. Not so in Britain, where until quite recently government made no attempt to interfere. Only within the last five or six years have there been serious attempts at interference with academic freedom and the universities have been wide open because they had not developed defences against this kind of interference. If you now look to developing countries, there the need for the institutions of higher education to be servants of the state in its development has meant very serious government pressures as to what universities should or should not do, quite apart from political pressures, and these countries have responded to this in a variety of more or less successful ways.

Let me next turn to universality of purpose. Here I want particularly to refer to two purposes - the pursuit of knowledge and the use of knowledge. Ever since Plato, the pursuit of knowledge has

received a higher rating than the use of knowledge and Plato has much to answer for. He is not totally responsible because you find a very similar point of view expressed in Ecclesiasticus. So we might blame jointly the Judeo-Greek tradition for this preference of the pursuit of knowledge over the use of knowledge. But it is here that perhaps governments are most justified in expecting universities to change. It may have been appropriate to take this platonic view of knowledge, as long as universities were private and cheap and were one of the many small activities going on in society, that they should do what they pleased, particularly as they did it, on the whole, well. But budgets for university education everywhere are so large now, that no state can ignore university education as a means of improving the well-being of the country. And that implies the use of knowledge. Here again, however there tends to be a differentiation between institutions and because of Plato - who by academic standards was a good guy - the most prestigious institutions are the ones where the pressure to be useful is usually least. In Britain today, there is a very strong indication that the government is prepared to fund a very limited amount in a limited number of universities for the pursuit of knowledge but expects the rest to be much engaged in the use of knowledge.

There is one important point to realise when it comes to developing countries, where the use of knowledge has in the past often been the irrelevant use of knowledge. Because of looking back to

Europe, much of research and much of teaching has been related to matters only marginally relevant to the conditions of the country. One of the very satisfying things that I have noticed over the ten or fifteen years that I have been travelling in developing countries is that there has been quite a radical change within the university ethos there towards an understanding of the needs of the universities to serve their countries.

Now we come to the universality of admission. Traditionally universities had closed access in many countries and open access in others. In Germany in the 1960s, one of the biggest issues in the students' revolt was the issue of numerus clausus, whether certain courses would be closed at certain numbers. In Britain, universities have never been open - it has always been up to the universities to decide whom and how many to admit. What is now extraordinary in Britain is that the government has decided that they should admit fewer than they want to admit. In developing countries, universities came out of European ones and therefore the oldest universities in developing countries, the most prestigious ones, tend to be those that date from colonial days and that often reflect the value systems which blessedly developed countries have abandoned. I will not mention names but you will find that in many of the countries which used to belong to that part of the world where the map was painted red, ie the

British Empire, there are individual universities that have a value system that dates back to Oxford, London, Edinburgh of the 1930s. However, most of these countries are also developing other means of admission and here I particularly want to mention Thailand where two huge universities have been developed with open access which accept as many students as want to come. While the rest of the Thai university system has something like perhaps 50 or 60,000 students, those two between them have nearly a million students.

The question which arises next is whether the higher education system should have as one of its tasks a social purpose of bringing along disadvantaged groups. Now in some countries this is done through affirmative action, in some countries it is not. But what I would like particularly to stress is that in many countries, the fact that disadvantaged groups are not admitted to higher education in anything like the numbers that they should be, is not only a disadvantage to those groups but much more seriously a disadvantage to the country as a whole. Because the amount of talent that is wasted and the amount of lack of talent that is admitted from the advantaged groups is such that, when it comes to affirmative action, it is not a case of helping the weak but of helping the country. But again differentiation here is much more between institutions than between countries.

What I have been stressing are the similarities between countries and the differences between institutions in each country. Let me spend just two or three minutes on some of the differences between countries. The most important difference that I have detected relates to the question of independence of study and that applies equally to students and teachers. I want to mention this particularly because it is presented to me so frequently as either an unsurmountable obstacle in certain countries, or at least one that nobody has yet managed to solve. When I go to South East Asia, almost the first thing that I am told at any university is, 'our students are different and you will not be able to do the sort of thing with these students here that you can do back in Britain, United States or wherever'. My first reaction to that, although I don't say so, is that I would like to know are your staff, your faculty different? Because if your faculty are different, then your students will be different, because they will model themselves on the faculty.

One's first reaction is that indeed the faculty are different. They have been brought up in a tradition which is more strongly geared towards the continuation of the old rather than the discovery of the new. They have a scholastic tradition which is similar to our medieval one. But what is so interesting, so reassuring, is how rapidly this can be changed, for both faculty and students, if they want it and if appropriate methods are employed. Therefore it is a question as to whether a country wants to change - and I want to

stress that it is not my business to say to a university in Malaysia or in Lesotho or wherever it may be, that it ought to teach in a way so as to make its students independent. It is my business to say that if that is their aim and if they believe that I have got some knowledge of methods which may achieve this aim - yes, then we can work together. Since I find that indeed this is the expressed aim, this is how we work.

A student of mine, a Malaysian, quite recently tackled the problem of what in Malaysia is called the 'Malaysian student syndrome'. It is that Malaysian students have the guru complex, they only want to know what the teacher knows and repeat it. By a process of changing from lecturing to using individualised learning methods, ie self-study methods, she rapidly shifted about two-thirds of a class from teacher-directed learning to self-directed learning. I would be surprised if I could achieve more than two-thirds in Britain. So I would like to say that there are differences, they have to be recognised, but they are not immutable. But if they are to be changed, they must be changed at the desire of those in those countries who are in a position to make decisions and who must declare their objectives, not for us who travel there. We are there to help, to achieve objectives which they declare.

To finish with a case study. The case study which I want to present to you, is one that I know most of. I spend weeks, even

months in different countries but I have spent decades in Britain. So my case study concerns the change in Britain between 1963 and 1985, because to me it demonstrates how rapidly it is possible to change situations in higher education when the value system changes as opposed to when the traditions change. In 1963 the famous Robbins report appeared, which was a liberal document, designed for an expanding higher education system and it stressed the value of free enquiry. It was in the best tradition of British education. Today we are faced with demands for an authoritarian system - and I am not now saying only that the government wants to be authoritarian about universities, the government expects universities themselves to be authoritarian. We are being told that universities have to be run like businesses from the top down with the vice-chancellor or rector as a chief-executive, instead of his traditional role of primus inter pares. We are asked to contract and the universities are helping the government by splitting amongst themselves, instead of presenting a united front against it. It is that where I say that British Universities have not learnt yet how to deal with outside pressures. They do not realise that unless they hang together they will hang separately. Academic freedom is being encroached upon by attacks on tenure and by quite specific demands for certain things to be taught and certain things not to be taught. Enquiries are to be directed towards certain ends and other ends are not to be pursued even if they are of a very similar kind, so that for instance, in economics, it would appear that it is safe to pursue capitalist enquiry but not marxist enquiry.

The question I would like then to finish with is: Has Britain changed its culture? As you will realise, I have painted rather a dark picture of Britain in the last few years. My hope is that by 1 o'clock this afternoon, I may be able to change my mind on this because we are just at the moment waiting for the results of a quite crucial parliamentary by-election which will tell us whether the people of Britain really still believe in the kind of value system in which Britain has traditionally believed. The answer therefore will be available during the afternoon.

Footnote

My hope was in vain. The fickle electorate, as so often, gave an equivocal answer in the Brecon and Radnor by-election of 4 July 1985.

# ACADEMIC STRESS: RESEARCH FINDINGS ON COPING

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The purpose of this paper is to describe and analyze coping processes, which faculty in academe are advised to use, in order to prevent or alleviate stress and its manifestations. At the outset of this discussion it should be pointed out that, relatively to other professions, the scope of research and publications on stress and coping processes in academe is very limited. Moreover, most researchers focused in their studies on identifying sources of stress. The discussions and recommendations on coping processes which are found in the literature of higher education, are based mainly on a qualitative analysis of the sources of stress and an intelligent appraisal of what would constitute effective coping processes in academe. Based on experience in other settings (Gmelch et al., 1983, 1984; Gmelch, 1984a, 1984b; Melendez and de Guzman, 1983). The following discussion will be preceded by a brief review of selected theoretical and conceptual constructs of stress and coping. This review is of special significance in the abscence of research data on coping processes in academe.

## Theoretical and Conceptual Construct of Stress and Coping

There are two basic traditions in research on stress. One has evolved from a biological perspective, based on research in physiology and endocrinology. Selye's work (1976) reflects the primary view of this tradition. Accordingly, stress is viewed as the organism's physiological response to events that challenge it. These events are usually external to the organism.

The second tradition is basically psychological and is represented mainly by Lazarus and his colleagues (Lazarus, 1966, 1981; Lazarus, Averill, and Opton, 1974; Lazarus and Launier, 1978; Lazarus, Kanner, and Folkman, 1980; Lazarus, Coyne, and Folkman, 1982; Lazarus and Folkman, 1984a, 1984b; Folkman, 1984; Folkman and Lazarus, 1985). Lazarus' approach is defined as the cognitive theory of stress and coping and is advocated also by many other researchers.

According to cognitive theory, stress is defined as a relationship between the person and the environment that is appraised by the person as relevant to his or her well-being and in which the person's resources are taxed or exceeded. Foremost among these resources is how the person appraises the situation. .Does he or she judge it as threatening or as a challenge? "At the extreme, this view would suggest that nothing is stressful, unless the individual defines it as such. That is, the physical characteristics of the stressor are of minimal or negligible importance relative to the human evaluation of the threat that they pose. No events are universally stressfull" (Fleming, Baum, and Singer 1984; p. 940). The relational characteristic in this definition is important. The person and the environment are in a dynamic relationship that is constantly changing. This relationship is also bidirectional, with the person and the environment acting on each other (Folkman, 1984). The essence of this definition is in the process of cognitive appraisal. There are two major forms of appraisals: primary and secondary. Through the primary appraisal a person judges whether an encounter with the environment is irrelevant and has no significance for his or her well-being. It could be viewed also as a benign-positive encounter. In this case the individual appraises that the encounter does not tax or exceeds his or her resources and signals positive consequences. There are three types of stressfull appraisals: threat, which means a potential for harm-loss; harm-loss, which refers to injury already done (physical or psychological), and challenge, which refers to the potential for growth, mastery or gain.

In secondary appraisal, the person evaluates coping resources, options and probable outcomes. It addresses the question "what can I do?". The coping resources could be: physical, such as the person's health, energy and stamina; social resources which represent the person's social network and support systems, from which he can draw information, emotional support and tangible assistance; psychological resources refer to beliefs which help a person to sustain hope, problem solving skills, self-esteem and moral. There are also material tangible resources, such as money, tools and equipment (Folkman, Schaefer, and Lazarus, 1979; Schaefer, Coyne, and Lazarus, 1982).

Coping resources were discussed above in the context of secondary appraisals but the coping process itself was not yet defined. According to Lazarus, "coping refers to cognitive and behavioral efforts to master, reduce, or tolerate the internal and/or external demands that are created by the stressful transaction (Folkman, 1984).

Semantically and in popular conceptualizations, coping implies managing or succeeding while not coping implies failure. For Lazarus and his colleagues, the coping process refers to efforts to manage demands, regardless of the success of these efforts. "The separation of coping efforts from their outcomes is necessary if the coping construct is to be used to predict outcomes, because when coping is confounded with outcome, any use of coping as a predictor is tautological and meaningless" (Folkman, 1984, p. 844).

Initially, Lazarus (1966) suggested two main coping processes: direct action, in which the person tries to master the stressful transaction with the environment, and indirect or palliative processes whereby the person attempts to reduce or manage the feeling of distress when unable to modify the stressful situation in the environment or when action is too costly for the person. While direct coping is applied externally to the environmental sources of stress, indirect or palliative coping applies internally to one's own behavior or emotions. Pines, Aronson, and Kafry (1981) added an active/inactive dimension to Lazarus' direct/indirect dimension. Active strategies involve confronting or attempting to change the source of stress or oneselves way of reacting to stress, while inactive coping involves avoidance or denial of the source of stress by cognitive or physical means.

More recently, Lazarus and his colleagues redefined and amplified the previous dimensions of coping. They view coping as having two major functions: one is the regulation of distressing emotions and described as emotion-focused coping; the other is an attempt to change, modify or manage the problem causing the stress and is referred as problem-focused coping. Problem-focused coping is used more frequently in encounters appraised by the person as changeable or holding the potential for control. In contrast, emotion-focused coping is used more frequently in encounters which are appraised as unchangeable or not amenable to control (Folkman and Lazarus, 1980; Lazarus, 1981; Lazarus and Folkman, 1984; Folkman, 1984; Folkman and Lazarus, 1985). These two major functions of coping have been recognized by other researchers of stress and coping (Kahn, Wolfe, Quinn, and Snoek, 1964; Mechanic, 1962).

The relation of the concept of control and coping is of special significance. Folkman (1984) differentiates between generalized expectations and beliefs about control and situational appraisals of the possibilities for control in specific situations. In addition, control could be described also as a coping process and refers to a cognitive and/or behavioral efforts to exercise or seek control in a particular stressful encounter. Folkman (1984) views Rotter's (1966) concept of internal and external locus of control as relevant to the discussion of control and coping with stress. An internal locus of control refers to the conviction that events depend on one's own behavior. External locus of control refers to a convicton that events do not depend upon one's action but upon powerful others: luck, chance or fate. Fleming, Baum, and Singer (1984) state that, "because internal locus of control is associated with the tendency to assume that one can affect one's outcomes, it may reduce the likelihood of an appraisal of threat or harm. It is also possible that people who are internals may perceive more things as possible threats to control, in much the same way as type A individuals do (Glass, 1977, p.943)".

From reviews on the relationship between control and stress it appears that most researchers assume that having control is stress reducing and not having control is stress inducing. Folkman (1984) points out that the obverse of this generalization is sometimes true. She states that "control can be a mixed blessing when exercising it exacts costs in other areas". One of the examples cited by Folkman, to illustrate this phenomenon, is a Type A behavior person, who is advised to control his or her behavior and become less driven and competitive in order to reduce the risk of coronary illness. "But to do so may cause the person to act against strongly held values, with a consequent loss of self-esteem and productivity" (Folkman, 1984, p. 845). Thus, the potential for control can generate distress because of its costs.

Fleming, Baum, and Singer (1984) attempt to present an integrative approach to the study of stress. Based on their review of the literature, they state that "there are various approaches that one may choose in order to cope with any given situation. One can change the situation, change one's response to the situation, reappraise the situation as not stressful, ignore the threat, or simply move away from the threat. There is a tendency for people to choose a direct coping approach (e.g., actions that reduce or eliminate the threat by direct interaction with the source). Most situations that present problems lend themselves to direct solutions, and problem solving through direct action is typically reinforced. People are, however, flexible enough to fit their solution to the problem at hand. Most people possess a repertoire of coping skills from which they select the most appropriate approach instead of trying to solve every problem in the same manner" (p.944).

Summing up the discussion on coping, Folkman (1984) suggests that "effective coping is to know when to appraise a situation as uncontrollable and hence abandon efforts directed at altering the situation and turn to emotion-focused processes in order to tolerate and accept the situation" (p.849).

Finally, the literature on stress and coping is growing in depth and scope. The discussion above was brief and touched on selected theoretical key concepts of stress and coping which seem relevant to the discussion of stress and coping in academe.

Coping with Stress in Academe

As stated above, researchers on stress in academe focused their efforts mainly on identifying sources of stress. In the abscence of research data on coping with stress in academe, they recommend generic coping strategies which were found to be effective in other settings and which would appear to be applicable in academe. The following discussion will describe the results of one study in which some aspects of coping in academe were investigated (Perlberg and Keinan, 1984). Afterwards, we will describe and analyze some of the main suggestions for coping strategies in academe which are advanced by Gmelch (1984a, 1984b) and Melendez, and de Guzman (1983) who are the main or only researchers who treated the problem of coping in academe. It should be pointed out that Melendez and de Guzman entitle their manuscript as "Burnout: The New Academic Disease" and suggest strategies to "Beat Burnout", but a close examination reveals that their discussion draws mainly from research on stress.

In their study of sources of stress in academe, Gmelch et al. (1983, 1984b) included one question pertaining to coping processes. The question lists seven activities, such as: social interaction, physical activity, personal interests, intellectual stimulation, entertainment, supportive attitudes, and self-management techniques. Faculty was asked to rank the order of importance of these activities in handling the tensions and pressures in the job. Gmelch et al. didn't report the results they obtained for this particular question.

Perlberg and Keinan (1984, 1985) used Gmelch's questionnaire in their study on stress of Israeli academicians, and included the same question. In response to that question, faculty indicated that social interaction was found most helpful. The examples given in the questionnaire to social interaction were "talking with a friend, telling jokes". These could be described also as a "social support system" which can be drawn upon for both "emotional support" and "problem solving support". In the case of faculty, "talking with friends" could be focused on problems related to the work situations and in particular to "stress producing" problems. The social network becomes both a catharisis-release mechanism through which faculty could air up their stresses and a problem solving support network through which faculty could discuss stressors which could be changed and learn to accept and live with inherent stressors in the system which could not be changed. Social support systems, as buffering and coping strategies, seem to be very effective in the case of Israelis.

In comparing coping strategies of Israelis and Americans, Eden, Shiron, Kellerman, Aronson, and French (1977) state that the social support system in which the Israelis are embedded may protect them better from tension than those of their American counterparts. Similar findings and interpretations were stated also by other researchers who conducted cross-cultural research, comparing Israelis to subjects in other cultures (Pines et al., 1981; Etzion et al., 1983, 1984).

Based on the general literature on coping, Gmelch (1984a; 1984b) makes several generalizations on which there is a general concensus and which should guide us in our search for effective coping strategies in academe. The first and most significant generalization is that "the individual is the most important variable" in the coping process and no one coping strategy is effective for all individuals in all situations. In applying coping strategies we have to be "sensitive to cultural, social, psychological and environmental differences in individuals". Individuals who cope best develop a repertoire of strategies to confront different stressors in different situations. Their repertoire represent a holistic approach towards coping and include different strategies, such as physical activities, occupational skills, social support, and others (Gmelch, 1984b, p.12).

The above generalizations stem from the basic theoretical construct which postulate that the person's perception, appraisal or evaluation of the "stressor" or the demands of the environment on him or her, on the one hand, and the appraisal of his or her ability to handle these demands, on the other hand, determine the degree of feeling of being threatened or distressed. It should be emphasized that the process is of a dynamic relationship and constantly changing. Coping strategies must suit the needs of a particular person and these needs may change in the process. In proposing specific coping strategies, it is suggested to differentiate between "Individual strategies" or "Personal prescriptions" and "Institutional strategies" or "Organizational prescriptions".

Identification and analysis of sources of stress in academe and the prevailing coping strategies, is the first step in the search for more effective coping strategies. This is a prerequisite, both on the personal and organizational levels and is strongly recommended by Melendez and de Guzman (1984), by Gmelch (1984a, 1984b), and by others. When stressors are indentified, it is suggested to divide them into two categories (1) those internally controlled and (2) those externally controlled. Those within the individual's control should be managed at the cause level by self-management techniques and those beyond one's control should be attacked at the symptom level with stress absorbers, such as relaxation, nutrition, exercise and coping attitudes (Gmelch, 1984b, p. 13).

Much of the stress faculty experience might be alleviated with a reappraisal of individual capabilities and limitations and learning to manage the stressors within one's control. To achieve this, Gmelch outlines a "Faculty Action Plan". The purpose of the plan is to systematically dissect and redirect stressors. To achieve this purpose the person receives a structured outline in order to analyze the causes of each stressor, to examine the potential solutions and take corrective actions. The steps in the Action Plan are:

1. Identify a bothersome stressor to resolve (the items in the Faculty Stress Index provide some initial clues);
2. Search for the causes of the stressful event;
3. Generate a set of possible solutions to remedy the causes;
4. Specify a plan to alleviate a cause;
5. Develop a timetable to implement the plan;
6. Set a date and method to follow-up and evaluate the effectiveness of the plan; and
7. Investigate potential problems or unintended consequences the plan may have created.

It is reasonable to assume that a systematic and logical action plan could assist any person in identifying stressors, causes and solutions. Moreover, it seems that most people are actually involved daily, intuitively, in a similar process of analysis which is part of their natural coping process, and as stated above, most people possess a repertoire of coping skills from which they select the most appropriate approach. The real problems occur in situations when people are not applying any systematic and realistic appraisals leading towards application of effecting coping processes.

Faculty in academe, by the nature of their profession, are keen on the use of scientific methods and systematic analysis of various phenomena. There is still a need to understand why some faculty members do not apply the scientific principals of systematic analysis and appraisal as a regular procedure in coping with their own stresses. One hypothetical explanation is provided by Gmelch himself when stating that "While the Action Plan may be seen as too mechanical and systematic, its logic is exactly what makes it work" (Gmelch, 1984, p. 15). It is possible that academicians are reluctant to apply a procedure which may seem to them as too mechanical and behavioral. Following a very structured "action plan" to their own personal problems may be perceived as underestimating their own analytical capabilities.

Another problem is that what may seem a systematic and logical analysis will result in a very simple analysis leading to the adaptation of simple solutions. The following example will illustrate this point.

Based on his studies, Gmelch (1984b) states that many of the stressors are internally controlled and should be managed at the cause level by self management techniques. He cites the example of "time constraints" which appeared in his own studies (Gmelch, et al., 1983, 1984) and in other studies (Perlberg and Zeinan, 1984; Melendez and de Guzman, 1983) among the ten top stressors.

In order to reduce stress resulting from the "Feeling that I have too heavy a workload, one that I cannot possibly finish during the normal work day", Gmelch presents a hypothetical analysis of causes, solutions, a specific action plan, steps for implementation and steps for a follow-up evaluation: One of the main solutions and steps for implementation is the development of a list of high and low pay-off activities (HIPOS and LOPOS), which should be followed by greater concentration on HIPOS tasks in daily life. Gmelch suggests also that institutions should also take steps to alleviate pressues resulting from time constraints. Some of these steps should include training in techniques which will assist faculty in identification of HIPOS and LOPOS and reduce faculty involvement in LOPOS tasks. Related to time constraints, Gmelch identifies as LOPOS: unnecessary meetings and other administrative activities which should be reduced. Gmelch proposes that faculty should concentrate on HIPOS activities in order to attain excellence in the critical products of teaching, research and service.

One wonders whether the above-mentioned order in which Gmelch listed the three main roles of faculty is accidental. Teaching is listed as the first task of faculty and one can assume that it is recognized and rewarded as such by academe. Unfortunately, the prevailing academic reward and recognition system forces faculty to perceive their teaching tasks as LOPOS. While the academic system may formally demand excellence in teaching, it is not the main criteria for selection, promotion and tenure. Research data on this issue is not clear cut. Direct reference to teaching did not appear among the first ten most important stressors in Gmelch's study. On the other hand, when he compared the three conventional areas of responsibility for university faculty - teaching, research and service - faculty reported a higher mean stress score for teaching scale than for either the research of service indexes (Gmelch, 1984a, p.488-489).

Another finding reported by Gmelch is that "Ambiguity over the criteria used to evaluate faculty in the three areas of teaching, research and service, also seem to be a high contribution to faculty stress". Perlberg and Keinan (1984), who used Gmelch's questionnaire, found research to be the greatest source of stress, after which came teaching and service. In a factor analysis carried out by Perlberg and Keinan, "conflicts with the academic system" was the first factor which accounted for 49% of the common variance. All nine items in that factor dealt with unclear expectations, conflicts in the system and ambiguity and uncertainty regarding recognition and evaluation of research performance. The results cited above illustrate the complexity of the academic system and the need for fundamental changes in its reward and recognition system.

Gmelch (1984a, 1984b) and Melendez, and de Guzman (1983), suggest a number of "institutional strategies" or "organizational prescriptions" which may alleviate or eliminate sources of stress and burnout. These strategies relate to a clearer and more realistic career planning and goal setting in the three traditional roles of faculty. "Excessively high self-expectations", especially in the area of research and publications, was found to be the highest source of stress in several studies. Any procedure taken, both the personal and/or the institutional level to attain more realistic goals and expectations are important in reducing sources of stress. Other strategies relate to the reward and recognition system, the internal structure of the institutions and departments, and an increase in faculty's involvement in planning and governing. These are few examples of strategies which may reduce or eliminate sources of stress. The basic problem, however, is the difficulty in achieving basic structural changes in academic institutions which are traditionally difficult or very slow to change.

Concluding Remarks

Research on stress in academe and in particular research on coping is in its infancy. Until we will have more data on the nature of stress in academe and what constitutes effective coping strategies, we have to rely the prevailing theoretical constructs of stress and coping in general and what, in our qualitative judgment, could be applied to academe. Lazarus' cognitive theory of stress and coping seems to us an adequate approach to a better understanding of stress and coping in academe. The key word in this theory is appraisal. Faculty, as individuals or in support groups, have to improve their appraisal systems. It relates to primary appraisals of potential stressors and secondary appraisals of one's ability to cope with these stressors. It relates to the person's appraisal of the degree of control he or she can exert in order to cope with stress and when to engage in coping strategies which are "problem solving focused" and when to use "emotion focused strategies".

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# ACADEMIC STRESS: RESEARCH FINDINGS ON CAUSES

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Last summer, at the Tenth International Conference on Improving University Teaching, a group of academics had dinner together. We came from different countries and taught different subjects. But we shared a common bond in that we were faculty teaching in the 1980's.

As we talked, we eventually departed from the usual topics of conversation - such as the woes of coping with teenage children - and found ourselves talking, instead, about stress in higher education.

More specifically, we talked at length about the factors that our small international group of academics felt contributed to the high stress level experienced by so many college and university teachers around the world.

We wrote down the factors that were mentioned, and then - over coffee and desert - we reviewed the list of academic stress producers and reduced it to the components that we felt were especially important.

That screening process motivated me to check the literature with an eye toward learning two things: First, how widespread is the feeling of high stress among professors today; second, what are the common sources of academic stress among college and university faculty?

The 1980's seem to be a period in which large numbers of professors are encountering a high degree of stress on the job. In a widely reported survey of nearly 2,000 faculty at seventeen colleges,

Melendez and de Guzman (1983) found that 62 percent reported that they now experience "severe or moderate" stress as faculty. A similar finding is reported by Gmelch (1984). He surveyed more than 1,900 professors at 80 public and private universities. Sixty percent of the total stress in their lives comes from their work as faculty members.

These are certainly high percentages. True, we can't make a relative comparison with the past since we don't know the earlier percentages. But, in absolute terms, we are probably safe in concluding that the academic environment of the 1980's is one of considerable stress for faculty.

There are several reasons for this:

1. Academic retrenchment, inflation, faculty unemployment, and shifts in the composition of the student bodies have significantly altered today's academic climate.

2. Professors are more keenly aware today of the dichotomy between their personal expectations and the rewards offered to them by their profession.

3. Requirements for promotion and tenure are so rigorous today that they are beyond the reach of many academics.

What are the specific sources of stress among college and university professors? What causes the considerable pressure and frustration they experience as faculty members?

The literature indicates that many researchers identify basic components by sorting producers of stress into related groupings. The number of groupings varies a good deal from one study to another.

But certain specific categories appear consistently in the literature. They include the following:

Too Many Tasks - Too Little Time

One of the most powerful sources of academic stress is excessive demands to perform discrete professional and personal tasks in severely limited time (Baldwin and Blackburn, 1981; Larkin and Clagett, 1981; and Bess, 1982).

Professors are confronted by the need to juggle many tasks in little time. To name just a few, we must: a) Prepare for classes; b) Keep up to date in our discipline; c) Conduct research; d) Write journal articles; e) Attend committee meetings; f) Engage in service to our community and institution; and g) Attend professional conferences. Add to this mix of professional activities, the desire to engage in personal activities and spend time with family and friends, and the clear result is too many tasks - too little time.

The time spent on one task is time taken away from another. That is why, for example, when vast amounts of time are spent in drafting a manuscript, there is scant time available for adequate preparation of classes, and almost no time left for family.

The predictable result, for many faculty, is frustration, pressure, and stress. Perhaps that is why nearly 50 percent of the faculty in a study by Peters and Mayfield (1982) report that they experience a high degree of stress in trying to balance heavy teaching loads, institutional expectations for research and service, and personal time spent with families.

Omelch (1984) found that the ten most important sources of faculty stress included several that relate to time constraint

a) Having insufficient time to keep abreast with current events in one's field; b) Feeling that one is continually overloaded with work; c) Job demands interfering with personal activities.

In his highly regarded study of the relative impact of different stressful situations at work, Adams (1980) found that having "too much to do and too little time in which to do it" topped the list of chronic work-related stress situations.

Inadequate Faculty Rewards and Recognition

Numerous research studies on the sources of stress among college and university faculty cite inadequate rewards and recognition - or a variation on that theme - as a major stress contributor. (Adams 1980; Bender and Blackwell, 1982; Melendez and de Guzman (1983); Gmelch (1984); Seldin (1984).

This broad topic includes such things as: a) the policies and procedures used to assess faculty performance; b) the atmosphere in which that evaluation is conducted; c) the rate at which promotion in rank is achieved; and d) the determination of who gets merit pay.

Much of the stress stems from the considerable difference between the relative weight institutions give to teaching, research and service and the weight faculty would like to see them give. College and university professors have a high regard for classroom teaching and devote vast amounts of time and effort to it. But the reward system at many institutions does not value quality teaching. Instead it places far greater value on research and publication. When that happens, not surprisingly, faculty experience a high degree of stress. (Peters and Mayfield, 1982).

Gmelch (1984) points out that professors are often unclear as to the expectations of their institutions regarding standards of faculty performance in teaching, research and service. Too often, professors are in the dark concerning the criteria used by their college or university to evaluate their performance. That uncertainty translates into stress.

Related stress-producing factors include: a) mandated student and/or peer evaluation; b) stringent guidelines that must be met in order to be promoted in rank or acquire tenure; c) increased fear of dismissal due to financial exigency; d) decreased mobility and job opportunities; and e) inadequate yearly compensation and salary increases (Crase, 1980).

The broad category of inadequate rewards and recognition has one other key aspect; insufficient feedback on performance. The sad truth is that too often faculty have no idea how others think they are doing. They simply don't know how their department chair and colleagues view their performance. These professors receive little or no feedback - either positive or negative. As a result, they are genuinely surprised when tenure or promotion decisions go against them. Why shouldn't they be? No one took the time or energy to give them needed feedback on their performance. Inadequate feedback on performance is a common source of job stress among professors.

Unsatisfactory Interactions with Students/Colleagues/Chair

A third factor which produces high stress among professors is unsatisfactory interactions with students, faculty colleagues and administrators.

Among factors relating to students, Melendez and de Guzman (1983) report that the greatest producers of stress are lack of motivation (apathy), and student expectations for high grades despite instructors' beliefs that they are not warranted. Considerable faculty stress is triggered by both: a) professors evaluating the performance of students; and b) students evaluating the teaching performance of professors.

With regard to interactions with colleagues, probably the greatest source of stress is the lack of mutual trust, respect and rapport among faculty members (Seldin, 1984). When the personal chemistry is weak, the stress level tends to be high. It is also high, of course, when an academic department is subjected to political divisions, professional jealousy, bickering and back-biting.

In interactions with the department chair, excessive workloads, budgetary constraints and lack of influence on decisions by the chair produce considerable stress. Two other important factors pointed out by Gmelch (1984) are: a) resolving differences with the chair; and b) understanding how the chair evaluates faculty performance.

In summary, the research literature suggests that college and university professors are buffeted by a number of stress-producing factors at work. These include:

1. Too many tasks to do in too little time.
2. Inadequate faculty rewards and recognition.
3. Unsatisfactory interactions with students, colleagues, department chair.

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# IMPROVING THE TEACHING-LEARNING PROCESS THROUGH SIMULATION LABORATORIES UTILIZING MULTIPLE SOURCES OF FEEDBACK

## A NORWEGIAN CASE STUDY

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During the last six years, several hundred faculty members and students of the Norwegian Institute of Technology - N.T.H., participated in activities designed to improve the teaching-learning process in the system. The main feature of the N.T.H. program is a simulation teaching-learning laboratory utilizing multiple sources of feedback, such as: personal recall, diagnostic oral feedback from students, peers and a consultant, and video playback of teaching-learning interactions. The program is designed for experienced and new faculty. Some of the experienced faculty are trained in consulting skills and serve as counselors to the new faculty. From a qualitative analysis of the program it appears that it is effective in changing attituded and behaviors of participants involved. As a result N.T.H. plans to

* The authors of this paper are personally involved in the development of the program. Hans Gunnar Auganes is Deputy Director of Studies at N.T.H. and the key person in initiating and developing the program. Arye Perlberg is the external consultant who accompanies the program since its inception. It should be pointed out that the authors are evaluating their own activities and their interpretation reflect some of their own biases.

continue and develop the program in depth and scope. Another result has been the establishment of an introductory program for all new professors, including a period of personal counseling in teaching roles.

The purpose of this paper is to describe and analyze the program and point out to some of its unique features which could benefit those interested in developing similar programs. Special attention will be given to the strategies of introducing change in a system.

Faculty Developmeng Activities in N.T.H. BETWEEN 1964-1979

N.T.H. was until 1985 the only engineering school in Norway. It is considered as one of the best engineering schools in Scandinavia and has also a very good international reputation for both its reaseach and development activities and for professional preparation of engineers and scientists. Even though N.T.H. has unique features which are specific to its culture, it could be considered a fairly typical, well established engineering school.

Faculty development activities at N.T.H. started in 1964. The Director of Studies organized each year two, 3-5 days workshops for 10-20 voluntary participants. The instructors were external consultants, usually from industry or universities. As for content, the workshops focused on presentations and lecturing skills; the use of media in lectures and some general pedagogical theory. The main method of instruction in the workshops was lectures.

On the whole participants evaluated the lectures and theoretical components of these workshops as having little significance for theme. On the other hand, they evaluated more favourably the experiential components of the workshops, such as group work, which enabled greater involvement of participants. On the basis of this feedback, the administration organized in 1976-78 several 5-days workshops focusing on group dynamics. The instructors were external personal development consultants.

Some observation could be made in regard to activities between 1964-79: The initiations of faculty development programs at N.T.H. in 1964, was probably influenced by the general trend in many universities around the world to put greater emphasis on improving the teaching-learning process. In the mid-seventies, a small group of faculty at NTH, voiced concerns about the quality of the teaching-learning process and proposed various suggestions to improve the situation. The students, too, like their fellow students around the world, have become more vocal in expressing dissatisfaction with certain aspects of the teaching learning process. As a result of the democratization process in higher education, student representative became members of the academic and administrative governing bodies of N.T.H. and were able to express their concern in these bodies and demand some action.

The academic and administrative leadership at N.T.H. have never considered the establishment of a center or unit for faculty development in N.T.H. which will conduct a comprehensive program as was the case in many north American and European

universities. The leadership preferd to initiate a low key, step by step program through which they will examine faculty's responses to voluntary activities and thus increase their awareness to the need to improve the teaching learning process.

From discussions with key leaders it appears that the basic philosophy which guided, and is still guiding, N.T.H. academic and administrative leadership is as follows: Until the academic world changes its basic attitute toward the role of teaching and the reward structure, there is no chance that faculty will devote a larger fraction of their time, to faculty development programs. Since participation in activities is voluntary, only high quality well designed programs, perceived as meaningful and significant for faculty, have had a chance of being attended by faculty.

The administration prefers to continue with the development of programs which will attract each year a larger circle of paricipants, rather that to establish a center or unit with whom the institution might be "stuck" in the future, if activities will not be in demand by faculty.

In 1979 the first author of this paper was invited to consult with the Director of Studies and his Deputy (the second author of the paper), on the development of a new faculty development program, to which we will refer as the "new program". It is interesting to note that familiarity of a staff member of the office of the Director of Studies with the author's publications in areas of teaching-learning laboratories and video

self-confrontation techniques, and her visit to his laboratory at the Technion, led to his invitation to N.T.H. In the following discussion we will present first a description and analysis of strategies which were used in introducing and promoting the new program and the key persons involved in the process. This will be followed by a brief description and analysis of the new program and its unique features.

Framework for Introducing Change in the System

The Depute Director of studies at N.T.H. (to whom we will refer as D.D.S.) is responsible for many areas concerning faculty, students and the administration of the programs of studies at N.T.H. He is invoved dayly in solving problems related to the teaching learning process. The D.D.S. was assigned also the task of organizing and developing the new faculty development program. In a retrospective analysis it appears that the combination of these roles was very instrumental in the successful development of the new program.

The D.D.S. reports directly to the Rector, the board of professors and other key persons in N.T.H.'s academic and administrative structure, on many issues. He is confronted daily with problems related to students and faculty and is very familiar with the forces interacting in the process. He is also aquainted with the delicate political balance of powers acting in academic institutions in general and at N.T.H. in particular. Last and not least, he is convinced that there is a need to improve the teaching learning process at N.T.H. and that there

are ways to do it. He does not believe however, in quick solutions. He prefers a step by step, evolutionary process, which will achieve in the long run, the desired goals.

It seems that the intensive personal involvement of the D.D.S. in organizing and facilitating the program lends to it importance and status. Moreover, some may view it as subdued pressure on faculty to participate and be involved, even though participation is voluntary.

The external consultant has been involved in faculty development activities for the last twenty five years, both in Israel and in many other countries, where he served as a consultant, facilitator and lecturer. His unique contribution since 1966 is in the development and use of simulated, teaching-learning laboratories, utilizing multiple sources of feedback, in faculty development programs. It is logical to assume that the external consultant's experience and reputation lended the program, in its initial stages, credibility and status. However, these were not enough to sustain interest and active involvement. These were achieved mainly by the qualities of the program and the persistance of its developers.

The External consultant's first visit to N.T.H. was devoted to his acquaintance with N.T.H. and the institutions' acquaintance with his basic philosophy of faculty development and specific proposals for activities. This was achieved through informal discussions with key persons in the academic and administrative leadership of N.T.H. and through formal presentations, in public lectures, seminars and mini workshops which

demonstrated some aspects of the consultant's proposals for activities.

From the outset, the D.D.S. and the external consultant were guided by the assumption, that the successful introduction of a new program into a system does not depend only on the inherent qualities of the program and the facilitators, but also on a careful analysis of the setting in which the program is to be introduced and the creation of a wide reference group which will lend support to the initiative and development of the program. It was agreed that this reference group has to include the most influential individuals and groups at N.T.H. Moreover, it was agreed that it is essential to keep this group informed and aware of activities as long as the program functions. The key persons with whom we met and consulted regularly, during the years were: The Rector; Prorector; Director of Studies; Heads of Departments; influential faculty member; top administrators in the central and departmental levels; the Board of Professors; the Central Education Committee and the Student Council.

In addition to consultations and discussion, key people were motivated to take part in activities and learn from first hand experience about them. The D.D.S. himself attended many of the workshops and was able to evaluate them not only on the basis of participants feedback, but also on his own experiences. In recent years, he became a co-facilitator of many workshops.

The Rector who served during 1976-84, was consulted regularly and agreed to acquaint the board of professors with the basic features of the teaching-learning laboratory through a one

day workshop for its members. The main feature of that workshop was a simulation of a Board discussion of a real problem. The discussion was led by the Rector and was video taped. The Rector and the participants experienced the process of video self confrontation by analyzing their interaction in the discussion. For most of them it was the first experience of observing their own behaviour. This experiential method of acquaintance was much more powerful than any regular oral presentation.

A professor who was then N.T.H.'s Prorector participated in one of the first workshops. Later on, as a Department head, he organized a specail Departmental workshop devoted to a qualitative analysis of the teaching-learning process in his Department. Based on his own personal experiences in these workshops, he narrated a special video tape. This video tape was used later in promoting the concept of the teaching-learning laboratory and in particular the concept of "Departmental Workshops", in other departments. A year ago, this professor was elected Rector of N.T.H. It is needless to emphasize how important is a very positive support from a Rector who has participated himself in a number of workshops and described them on tape.

The Director of Continuing education at N.T.H. participated in several workshops and later organized a number of workshops for faculty, teaching in the continuing education program.

Faculty Centered Workshops

In designing the particular workshops, the needs of each participating group was taken into consideration. Moreover, the external consultant, who facilitated most workshops and the local coordinator of each workshop, tuned to the participant's feedback and changed procudures and content during the workshops themselves. The organizer's basic attitute was that the concept of "faculty centered workshops" was a strategy and a message. Through this, faculty were acquainted by experience with a "student centered learning statagy". Responding to the faculty's particular on going needs increased also their own motivation in the learning process.

The Teaching Learning Laboratory (T.L.L.)

The new faculty development program consisted of a series of 2 days workshops for groups of 8-12 faculty member, conducted twice a year, at the beginning of the first and second semesters. The main feature of the workshops is the T.L.L. The workshops were designed to meet the needs of different groups at N.T.H. such as: new faculty, experienced faculty - particular departments, consultants and counselors to faculty, students and student teachers. While these series of workshops constitute the main faculty development program, other activities, on a more sporadic basis are also organized by various departments and the D.D.S. For example, a workshop on: "Teaching Students How to Learn" was conducted recently for students, councellors and some other faculty members.

In the first year, the workshops were conducted on the campus. Experience showed that participants were distracted by other obligations and could not devote their full attention to the workshops. As of the second year, the workshops were moved to an out of town hotel. This facilitated an intensive concentrated experience far beyond the formal hours of the workshop. It was instrumental in creating a cohesive group feeling. There is consensus among those involved that the benefits of the out of town setting justify the expenses.

Within the limits of this papers, a brief description of the basic characteristics of the T.L.L. will be given. A more elaborate discussion could be found in the first author's publication (Perlberg, 1976; 1979; 1984).

Learning by doing and a safe practice ground

The inherent characteristic of any laboratoy is learning by doing in a safe practice ground, with minimal fear of the consequences of failure. The T.L.L. provides such a setting.

Micro experiences

The teaching-learning experiences; counseling; consulting and any other interpersonal interaction practiced in the lab. are scaled down. For example, regular classroom situations are scaled down in length of interaction (about 10-15 minutes) and number of learness.

Focus

Experiences in the lab. are focused on particular skills and strategies in the teaching-learning situation or any other interaction, such as: lectures, interactive skills during lectures, questioning technique, small group work.

Feedback

The feedback is probably the most important element in the improvement process. It facilitate self confrontation in which the person discovers discrepancies between ideal images and real images of his or her's behavior. This discovery triggers in geheral a feeling of dissatisfaction and readiness for change. The intensive use of multiple sources of feedback such as: the person's own recall; feedback from learners who are in some cases regular students from the university; peers; video playback and a consultants' feedback, is a powerful process which triggers change.

Models

Participants have opportunities to observe models in various roles such as: teachers, learners and consultants. Some of these are ready made models presented on video or film. Most important are the live models of behaviours which are presented in the lab. by participants and the consultant through the simulations.

Indirect style of consultancy

The main style of consultancy given in the lab., whether by the facilitator or participants who act as consultants is indirect

and based on Goldhamer's (1969) model of clinical supervision. The aim is to increase the self owareness of each participant to his of her's inter and intrapersonal interactions in classroom situations and other settings. The person involved is encouraged to identify and adopt alternative solution to behaviours which require change.

Theorectical input

Theorectical input in the format of comments or short presentation, aimed at re-enforcing or modifying certain behaviors which accure in the lab. or the classroom, are given by the facilitator.

Other activities

In addition to the teaching-learning simulations other exercises are conducted. Each workshop starts with an "ice-breaking" exercise which is followed by a critical incident exercise devoted to an analysis of the participants' best and worst learning, teaching or consulting experiences. The exercises are conducted in small groups, and the findings are presented to the whole group. The analysis of the best and worst experiences provides the framework for evaluation criteria of the subsequent simulations. It is interesting to note that participants consider these opening exercises as having a crucial role in establishing an open, supportive and facilitative atmosphere, which enables them to benefit from the self-confrontation during the simulations.

It should be stressed that the small number of participants in each workshop, enables each one of them to experience at least one teaching or consulting simulation. It facilitates greater involvement in group discussions.

In addition to the opening exercises and the simulations, other small group activities are devoted to curriculum and learning issues in the particular departments or in N.T.H. as a whole.

Student participation in the T.L.L.

From the outset, an attempt was made to involve small groups of students as learners in the T.L.L. This procedure facilitated a greater sense of reality in the laboratory situation. Moreover, faculty realized that students could provide qualitative feedback as learners and point out unique learning difficulties which they encountered in the particular simulation or in N.T.H. as a whole. At present a group of 4-8 students attend departmental workshops. The impact of their participation is felt also in the regular teaching on the campus. It is emphasised constantly that the teaching-learning process is a tripartiate responsibility:

The faculty, the students and the organization.

Student participation in the workshops has led also to special workshops for the Student Council which aim to improve the members' own interpersonal communication skills and increase their constructive involvement in promoting activities for improving the teaching-learning process.

Evaluation of the T.L.L.

At the end of every workshop there is a structured evaluation session. It is chaired by one of the participants who have participated in previous workshops or one of the senior participants. On same occasions the workshops coordinator leads this session. The facilitator is also present.

The evaluation session is presented as an exercise in a qualitative, diagnostic analysis of participants particular experience in the T.L.L. It serves also as a model for an evaluation session which teachers could conduct in their own classes. Participants are encouraged to express themselves freely, analyse their experience in the T.L.L. and propose suggestions for improvement. The session is videotaped for further analysis. In most cases participants are advised to express themselves in Norwegian, so they will feel at ease in expressing their thoughts and feelings. Experience shows that the evaluation session has become another important learning experience in each workshop.

Future directions

As stated above a significant number of faculty members, students and administrators participated in the new faculty development program. Participation in the activities resulted in a greater awareness and interest in general educational matters and higher educational policies which go beyond the regular individual classrooms.

The plans of the Norwegian government for establishing engineering programs also in other insitutions than N.T.H.,

are bound to result in higher competition in recruiting the most qualified students in the country. It is reasonable to assume that prospective students, especially for the undergraduate programs, may be influenced to choose an institution with a reputation for a good teaching-learning climate. An institution that is considered to be effecient and enjoyable may have an edge in the competion for applicants.

Another problem affecting N.T.H. at present is the increasing competition with industry and business in the recruiting of highly qualified faculty, and of students for the graduate program. In a number of important disciplines N.T.H. find it increasingly difficult to fill faculty positions. New engineering programs at other institutions will also depend on the recruitment of faculty, and thus add to the competition.

These developments call for strategic, comprehensive planning for the next decade. There is a strong need for a new start in very many fields. Among these: The organisation of N.T.H., the curriculum, new fields of study, adaptation to market needs, adoption of new teaching-learning strategies utlizing technological developments such as computer assisted learning.

A group of leaders in N.T.H., including the D.D.S., are at present involved in a formalized strategic planning process for the N.T.H. It seems that great attention will be given to this task in the near future. From discussion with some of those involved in the planning activities, it appears that the faculty development programs conducted in the last five years contributed

significantly to the awareness in N.T.h. of the importance and potential of such planning methods.

The basic development of faculty's teaching-learning skills which was the focal activity of the workshops of the last five years, will continue. However, this will be done mainly through departmental workshops. These are also devoted to curriculum planning and organizational development in which the external consultant is involved too.

As stated above N.T.H. does not have a center or unit for faculty development. The D.D.S. initiated and directed the organization of the described program. His present intensive involvement in strategic planning and his many other administrative duties, limits the attention he could pay to basic faculty development activities.

There are no plans for establishing a center or unit which will be responsible for all these activities at N.T.H. The future will show how the present model will develop.

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## IMPROVING THE TEACHING-LEARNING PROCESS THROUGH MULTIPLE SOURCES OF FEEDBACK - A NORWEGIAN CASE STUDY

Discussion

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In discussing the papers by Drs. Auganes and Perlberg, I intend to address three levels:

1. The individual level (feedback to instructors)

2. The method of improving the teaching/learning process

3. The institutional level - bringing about change

### Feedback to the Individual

As I've indicated in various articles, the key to successful feedback seems to me to include four elements:

1. information

2. motivation

3. behavioral alternatives

4. concepts or theories

With respect to information, effective feedback needs to provide information that the learner does not already have. It is usually not sufficient simply to tell someone needing to change that they are doing something wrong; feedback needs to assist in diagnosing what is wrong in terms that are understandable by the learner.

Feedback can have both positive and negative effects upon motivation. Often negative feedback simply makes the individual discouraged so that the motivation for returning to the classroom or for improvement is depressed rather than increased. Thus to be effective feedback needs to provide hope for improvement, a sense that it is possible to be successful.

One of the keys to hope is to help the learner see that there are alternatives that may be more successful. One of the reasons people get discouraged when they receive negative feedback is that they don't know what else to do then what they have been doing in the past. Thus giving suggestions about other techniques or approaches that may be tried is important not only in itself but also in increasing the hope for improvement.

Finally, some sort of explanation at a conceptual or theoretical level may help the individual understand the situation and be able to generalize the help beyond a specific situation in which the feedback is given.

It seems to me that the Norwegian program is successful because it included all of these elements. The use of multiple sources of feedback seems to me to provide an additional strength, particularly if the sources are one's that the learners trust and which pose a minimum of threat or risk. The use of the outside consultant probably confers some extra sense of validity along with a lack of threat to ones future. It is a tribute to Hans Gunnar Auganes that he has established credibility and trust that enable him to participate without creating additional anxiety and threats to the participants.

Methods

One of the strengths of the Norwegian program is the use of experienced teachers as counselors and training for the counselors. We have shown in our own research that feedback from student ratings given by counselors is more effective than ratings alone and counselors offer interpersonal support, an important coping device for individuals experiencing stress. It will be interesting to learn in future reports in this project what the effect is on the counselors themselves. Do they see the counseling as an additional burden in their academic role, or does it confer a sense of competence and prestige?

The use of students in these sessions is also I think an important strength of the program. This should not only help the students become better sources of feedback for their own

teachers,but it may generalize to helping them to become better learners because they are able to understand something about different teaching styles and how to adapt to them.

I'm envious of the Norwegian program's ability to hold off-campus workshops. Getting out of the normal milieu and into a situation in which learners and staff interact outside the formal workshop setting seems to me to be a particular strength of the program. The team leadership and the current use of departmentally oriented workshops also seem to me likely to be useful since many of the problems of teaching are intimately tied to content and to particular teaching problems related to disciplines. A departmental workshop can deal with down-to-earth problems in a specific concrete fashion likely to have immediate applicability for faculty members.

I shall be interested in follow-up studies of the effect of the program on departmental norms and communication. Ken Eble and I in our study of faculty development programs for the Bush Foundation found that an important factor in the durability and long-term effects of the program was the increased amount of communication about teaching and the perception of faculty members that norms with respect to teaching had been affected by the workshops.

The Institutional Level

The Norwegian experiment seems to me to be one of the more significant successes in the field of faculty development. I hope that Drs. Auganes and Periberg will give us additional symposia or papers with respect to ways in which it might be generalized. As a former director of The Center for Research and Learning and Teaching I'm impressed that this program was carried out without a formal center. It may well be that centers such as our own are so visible that they are perceived by some faculty members as a threat rather than as a helping agency and that in times of budgetary cutbacks, a less visible mechanism of faculty development may also be less vulnerable.

Whether or not one has a center, I think some of the elements in change at the institutional level exemplified in this program are generalizable to many institutions. The explicit attempt to involve key professors with high prestige is an example of carrying out the implications of studies by Rensis Likert and others, who studied innovation in agriculture and in medicine. Their results showed that involvement of certain farmers who were willing to change and who were perceived by other farmers as leaders made a difference in adoption of the use of hybrid corn and other agricultural improvements; similarly opinion leaders among the medical community were important in the adoption of new drugs or therapeutic techniques. Also important

in this program was the strong support and personal involvement of administrators, such as Hans Gunnar Auganes and the rector of the Norwegian Institute of Technology.

In short, I believe that this program has much to offer for all of us concerned about improving teaching, and I hope that we'll hear additional reports about its continuation and successes.

# INTERNATIONAL EVALUATION:

# PRELIMINARY REPORT OF USER ACCEPTANCE OF

# INTERNATIONAL ELECTRONIC DOCUMENT DELIVERY SYSTEM

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This preliminary report of user acceptance of an international electronic document delivery system, is intended more to illustrate an evaluation model that crosses international boundaries, than to present in final form an evaluation of a completed project. The project is, in fact, in process, as is the evaluation; and this report is made in the context of a workshop that both described the project and described principles of international evaluation

The Invisible College experiment is one of ten two year experiments, part funded by the Commission of the European Communities, to explore the potential of electronic document delivery and electronic publishing. In the course of the experiment staff in third level educational institutions were encouraged to develop and exchange documents via computer. The initial focus of the research tended to be hardware/software oriented due to the combination of mainframe and variety of microcomputers used to establish the network and the problems of international communications between computers. It was the complexity of the project with operated in three distinct but complementary networks which offered an opportunity for formative evaluators to influence the shape of the project as it evolved over time.

INTERNATIONAL EVALUATION:

The project and the evaluation is a demonstration of action research in that the research results influenced the direction of the project. The notion that this type of research is less scientific and that "the rigorous criteria applied to regular educational research can be relaxed in doing action research" is not an appropriate observation in this instance. (Borg, 1981, 249). The fact of the matter is that the researchers had to be especially careful to maintain scientific rigor in an evaluation where the results influence the direction of the project.

The researchers were quasi-independent of the project, in that evaluation of user acceptance was clearly in the hands of the evaluators, and not a function of project managers. However, the invited comment of the managers and the users, in a formal yet unstructured environment provided information that improved the exchange of documents by computer across international boundaries, and particularly facilitated the use of the system for collaborative interaction by academics, geographically distant from one another.

The dichotomy of qualitative vs quantitative or formative vs. summative or non experimental vs. experimental research was obscured as it should be in action research. (Reichardt and Cook, 1979). This research was clearly both formative and summative. This distinction, often valuable in teaching research, takes on less importance in action research as noted by Cronbach (1983). This research merged the formative and the summative into a three phase evaluation of which only the first is preliminarily reported here.

To put the first phase report in context there are four main objectives of the total evaluation. The first, reported here was a preassessment of user expectations. The three remaining are an

evaluation of attitudes, mechanics and institutional issues at the mid point of the project and after completion of the project. Tools to gather the data included both a questionnaire and a structured interview. The following (Table I) is a model of the evaluation as originally planned.

**TABLE I**

**DOCDEL Evaluation Model**

| | MANAGERS | INFORMATION PROVIDERS | INFORMATION CONSUMERS |
|---|---|---|---|
| EXPECTATIONS Questionnaire E | User Expectations | User Expectations | User Expectations |
| PROVIDERS Questionnaire P mid & post | | Attitudes Mechanics Institutional issues | |
| CONSUMERS Questionnaire C mid & post | | | Attitudes Mechanics Institutional issues |
| STRUCTURED INTERVIEWS | Attitudes Mechanics Institutional issues | | |

INTERNATIONAL EVALUATION:

An evaluation format suggested by Kirkpatrick, 1977, was used in designing this evaluation schema. Kirkpatrick's framework is as follows:

| Level | Questions |
|---|---|
| 1 Reaction | Were the participants pleased with the program? |
| 2 Learning | What did they learn from the program? |
| 3 Behaviour | Did the participants change their behaviour? |
| 4 Results | Did the change in behaviour positively affect the organisation? |

This was found be a useful general guide to fundamental questions after the performane of the project.

Through discussions with the managers of the project, the evaluation team worked out an agreement as to the characteristics of the evaluation that would be carried out. It would be:

. geared towards the aims of the project
. as objective as possible
. based on data from the participants and managers
. based on attitudes, interviews and performance
. independent of the project management
. clear in its objectives
. formative as well as summative.

INTERNATIONAL EVALUATION:

The expectations survey presented a challenge since it included a complex instrument that needed to be administered to both an English speaking and a French speaking population. The first step was to develop a precise English version using all the professional care necessary in constructing any scientific instrument. The development of the instrument included a pilot administration of it to Communications students at the National Institute for Higher Education Dublin.

A draft of the questionnaire was sent to the managers in all three countries. As a result of the responses to this questionnaire substantial changes were made not only in the content of the questionnaire but also in the way in which the questions were presented. Clearer definition of the format, the structure and the content was achieved in this way.

This agreed version was then sent with a French translation to the project manager in France who amended the translation. The process then involved reconciling the two French versions and then a translation back into English. When the original English version matched the retranslated English version the questionnaires were considered equivalent.

INTERVIEWS WITH PROJECT MANAGEMENT

As outlined in Table 1 an important part of the evaluation was to discuss progress and expectations with the project managers. This was carried out during the early part of 1985 with the managers in

France, Britain and Ireland. The main results of those interviews are outlined in the following table:

| France | Britain | Ireland |
|---|---|---|
| - desire for more interaction | - desired more interaction | - desired more interaction |
| - phone link problems | - insufficient access to terminals | - frustration with hardware |
| - database of little interest | - intelligent software needed | - keep system small |
| - joint authorship possibility needed | - overarching system links | - but unite in some way |
| - unpublished course materials useful | - it develops group identity | |

The Questionnaire Results

A brief report of the findings will focus the translation difficulty. The questionnaire attempted to answer the research questions in such a way that three dimensions could be graphically displayed together.

The survey developed asked prospective users about the importance of:

1. the type of data base
2. the use of the data
3. the exchange of data within and between institutions.

After an assessment of the importance prospective users placed on these elements, they were then asked to estimate their frequency in the use of these elements, using a five point scale.

The following series of tables shows the various elements measured in a progressive representation that eventually combines two dimensions of each of the three elements. The following summary of the tables with the question that each table answers is helpful in examining the various dimensions.

Table 2: Which data base is most important to the prospective user?

Table 3: Which use of data is most important to the prospective user?

Table 4: Is the sharing of the data most important within an institution or with other institutions?

Table 5: How do users expect to use the system in terms of the above three dimensions? (5 point scale with 5 the most frequent use)

INTERNATIONAL EVALUATION:

Table 2

Relative Importance of Different Types of Information

| Routine Office Communications | Course Materials | Scientific Technical Documents | Teaching Experiments |
|---|---|---|---|
| 19.1% | 27.8% | 34.8% | 13.9% |

Table 3

Relative Importance of Different Functions of Electronic Document Delivery

| Sending | Receiving | Collaborating/ Sharing | Storing |
|---|---|---|---|
| 10.4% | 11.3% | 49.6% | 22.6% |

Table 4

Preferred Use of Document Delivery

| Within the Institute | With other Institutions |
|---|---|
| 39.1% | 58.3% |

Table 5

Expected Frequency of Use of Respondents of Electronic Document Delivery System

| | | Routine Office Communications | Course Materials | Scientific Technical Documents | Teaching Experiments |
|---|---|---|---|---|---|
| SENDING | *INTERNAL | 3.0 | 3.0 | 2.5 | 2.4 |
| | +EXTERNAL | 1.9 | 2.7 | 2.7 | 2.4 |
| RECEIVING | *INTERNAL | 2.8 | 2.8 | 2.5 | 2.5 |
| | +EXTERNAL | 2.1 | 2.9 | 2.8 | 2.6 |
| COLLABORATING/ SHARING | *INTERNAL | 2.4 | 2.7 | 2.4 | 2.4 |
| | +EXTERNAL | 1.9 | 2.8 | 2.6 | 2.6 |
| STORING | *INTERNAL | 2.9 | 3.3 | 3.0 | 2.7 |
| | +EXTERNAL | 1.4 | 2.3 | 2.1 | 1.4 |

The results above are average scores on 5 point scales, ranging from 'very frequent' (5) to 'never' (1).

* Within my institution

+ At other institutions

INTERNATIONAL EVALUATION:

The conclusion of the evaluation of this project cannot be reported until a similar instrument is administered to users of the system and then expectations can be compared with actual use. What is known at the present time is somewhat paradoxical since prospective users indicated that the collaborative sharing of scientific and technical documents was the most important use of the system. On the other hand, most prospective users indicated the following as the most expected use they expected use will make of the system: 1) storing scientific and technical documents within one institution, 2) sending routine office communications within one institution, 3) storing course materials within one institution.

The fact the importance was not the same as expected use, provided a new challenge for this research. The challenge is to develop the system to meet those needs which were discovered to be most important while at the same time allowing for the concomitant use of the system according to expectations.

In the course of the project, given the feedback made available by the evaluators, the emphasis in terms of priorities shifted from hardware/software considerations related to electronic publishing to a more interactive communication between academics with similar research interests in the document development phase. This is evidenced by the title of the user handbook distributed to the users of the joint database which is referred to as Information Exchange System. This system actualised in a simple user friendly way facilitates such

electronic mail and phone or talk to facilitate communications between staff who can readily identify the active research interests of other users through user Profiles which are available on-line. Additional facilities which users identify as useful to them in the process of communicating or developing documents will be provided as the experiment progresses. A proposal is in hand to extend the network through other European countries and to carry out a cost-benefit analysis of the system.

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# TEN PRINCIPLES OF LEARNING REVISED IN ACCORDANCE WITH COGNITIVE PSYCHOLOGY: WITH IMPLICATIONS FOR TEACHING

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Abstract

The principles of learning which have been taught to teachers at all levels are revised in terms of modern cognitive psychology. Ten basic learning principles are identified arising from the educational psychology literature used in teacher-preparation programs. Revisions are suggested according to current theory and research in cognitive psychology. In particular, the earlier contributions of E. L. Thorndike, Guthrie, Lewin, Tolman, and Skinner are reinterpreted through the work of Ausubel, Bandura, Farley, Gagné, McKeachie, Nuttin, Marton, Pavio, Rychlak, Weiner, Wittrock, and others. A set of ten revised principles of learning is derived and presented together with interpretations of this analysis for the work of teachers.

# TEN PRINCIPLES OF LEARNING REVISED IN ACCORDANCE WITH COGNITIVE PSYCHOLOGY: WITH IMPLICATIONS FOR TEACHING

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## Introduction

Learning phenomena have been studied experimentally and with increasing intensity over the past 110 years. From the early days of this century, educational psychology has been concerned with discovering rules, laws, or at least general principles of learning, which could be communicated to teachers to inform their work accordingly. In Table 1, I identify a set of ten of such principles that has been taught to teachers at all levels over the years. These are still by and large considered to be, with certain qualifications, "good advice" from educational psychologists to educators. Next to each of the 10 principles, I name the psychologists most closely associated with theory or research which underlies the item. Exact references to the work of these is not cited, but the interested reader is referred to recent works on learning and educational psychology (e.g., West & Foster, 1976) for these citations and a discussion of their work.

Arguably, the single greatest development in educational psychology in the past decade has been the growing impact of models and research in cognitive psychology. Following an extended period of time when behaviorism, at least in Anglo-America, held sway, there has been a renaissance of serious work done about the actions (implying intentions as well) and mental lives of normal children and adults. Collectively, this work is termed cognitive psychology. I have accordingly attempted to provide a restatement of the 10 original principles, revising them to be in closer consistency with what I take to be the key findings of research and of the models that have been advanced as cognitive psychology. Table 2 provides this revised list together with the

name of the psychologist(s) whose research or theory is associated with the content of the revision. These citations are included in the list of references since there is no single source where these works can be readily identified.

Each principle is discussed below with reference to its revision and implications for teaching. Readers are invited to modify the list further and to direct comments or questions to the author. Of course, this is a tentative list although it has undergone a number of modifications since the idea initially occurred to me over a year ago. Among the potential uses I would advance for such a revised list would be as a means to enable educational psychologists and consultants to give advice to new and experienced teachers at all levels on how to improve their teaching. An obvious secondary use would be to generate discussion among colleagues about these ideas, their (in)adequacies, and ways the list might be modified, improved, or used in more direct ways. If only parts of these uses are implemented, I should still feel that it has been worth the effort to draw it up.

The reader will note that in every case the revised statement is wordier and more complicated than the original principle. This is in part an artifact of the procedure. It also represents the state of the art in psychology today, I believe. Psychology simply has not achieved the strain toward parsimony it sought during the grand theory-building periods. Complex human behaviors seem, at least at present, to be irreducible to a simple set of propositions based upon combinations of unequivocably stated principles.

Discussion

Guthrie's original principle of learning to do by doing, based upon the Pavlov-Watson behaviorism of the 1920s and the intellectual context of Dewey's pragmatism, is still good advice overall. To it must be added, however, developments both in instructional psychology (Gagné, 1985) and research in social learning (Bandura, 1978) to have a more complete or adequate principle concerning learning to do a thing. We learn through instruction and through observation, which of course may set the standards for and guide and elicit our doing a task as well as being sources for feedback (corrective or encouraging). From the body of literature on social learning, one may conclude that the mental imagery evoked in observing a model (teacher or peer) perform certain actions is sufficient to incorporate the details into one's repetoire for future use.

Teachers are well advised to consider the range of possible media for enhancing students' abilities to "do" particular acts or tasks. The choice of telling students, or demonstrating for them, or engaging them in simulation exercises or other approximations of performing the criterion task is determined, among other things, by a consideration of optimum instructional and motivational (strategic) as well as situational (logistic) factors. The original principle survives fairly well if "doing" is interpreted symbolically (through imagery) as well as literally.

The second principle, also associated with Guthrie, is collateral with the first. One learns to do what one does in fact, not something else. Guthrie and his students provided a number of homely examples of parents, coaches, and

teachers inadvertently teaching children the "wrong" things--to cry at mealtime or bedtime, to run up stairs instead of playing winning ball, to avoid studying, etc., by violations of this principle.

Many modern psychologists aver that, other things being equal, the best predictor of what a person will do in a situation is what they did last time in a similar situation. If this sounds more like performance rather than new learning, a related statement from cognitive psychology clarifies the point somewhat. What a person already knows bears a strong influence on what and how she or he will learn. Added to this is the point made by Rychlak (1979b) to the effect that dialectical thinking leads children and adults to reason to alternatives adding to behavioral variability in forming personal intentions that guide action. If Guthrie's original formulations now allow for these amendments, they do not appear to have contemplated them initially.

Number three is immediately recognized as the principle of reinforcement or "Law of Effect" advanced by Thorndike and further refined and developed by Skinner. It has been shown, however (and widely experienced by teachers) that reinforcement is not the lawfully unitary phenomenon it was once thought to be. One approach to this is provided by information processing psychologists who interpret the influence of reinforcement on behavior as depending upon the informative value of it to the learner. This interpretation is supported by a number of experiments performed by Nuttin and his associates (reported in Nuttin & Greenwald, 1968). In these studies, telling a learner a response was incorrect promoted learning as much as did "reinforcing" a correct response (since it provided information the learner could use next time). This is, of

course, consistent with the dialectical analysis of learning noted above. McKeachie (1974) in his essay on the "Decline and Fall of the Laws of Learning" has documented the changes in our understanding of the concept of reinforcement with new experimental evidence over the years.

For teachers, reinforcement is still an important principle once it is understood to be relative to the situation and relevant to the learners' "need" for information at the moment. An important part of the art of teaching is appreciating the relativity of learners' potential reinforcement "menus" and anticipating the likely informative and learning enhancement outcomes of different consequences for particular learners in different situations.

The readiness principle, number four, has been traditionally understood in developmental terms. To some extent, this probably still holds for children, particularly regarding what are called logico-mathematical tasks. In other circumstances, especially for adults in general, readiness to learn new things appears much less developmental and more dependent upon the nature of individual structures of knowledge, which are more or less appropriate to the requirements of the task at hand. Ausubel's theory of meaningful verbal learning (Ausubel et al., 1978) and the work of DeBono (1983) on lateral thinking seem appropriate in making revisions to the original principle.

Teachers are well advised to assess, formally or informally, the entering skills and structures of students in order to adjust the learning objectives and instructional procedures accordingly. For certain new learnings and particular students, "advance organizers" may be desirable to build the "bridge" to their existing cognitive structures. Likewise nonlinear and

lateral thinking may be required to solve problems that would otherwise prove to be too vexing. Without these "aids," the desired learning may not take place at all or may remain at low levels of meaningfulness (e.g., rote learning).

Principle number five comes from Gestalt psychology and refers originally to the perceptual aspects of learning. This can be broadened to include beliefs about personal abilities to perform certain acts, termed self-efficacy in Bandura's (1978) recent work. The ways in which a learner "sees" the world and makes sense out of her/his surroundings serve to determine whether learning occurs at all, or at surface or deeper, more meaningful, levels (Marton, 1981).

Teachers who do not recognize their ability to influence such student perceptions or to use them in structuring learning tasks miss opportunities to promote important learning outcomes.

The "Law of Exercise" or practice effect is listed as the original sixth principle. As in the case of reinforcement, research and theory in cognitive psychology have changed our conceptions about practice. In particular, the power of covert or imaginal practice to promote learning and retention are newly emphasized. Wittrock's generative theory of learning (1979) suggests that the activation of multiple brain centers may well operate to improve learning and retention--particularly in the case of meaningful verbal learning. Teachers are challenged to devise alternative modes of practice to engage students more fully with aspects of what is to be learned. In a Ph.D. dissertation performed recently under my direction, Norman Carsley (1984) found

evidence supporting Wittrock's theory in research on college students' learning psychology. Teachers need to be aware of this expanding literature and its implications for promoting student learning.

Transfer of learning is the seventh principle on the list. Whereas readiness (#4) largely has been developmental in conception, transfer is primarily experiental. The traditional advice to teachers to make the transfer task as much like the criterion task as possible still holds by and large. Gagne's research suggests additional possibilities for "vertical" transfer up a hierarchy of task complexity, however. Students may require differential amounts or types of remediation to enable them to master new more complex tasks depending upon the quality of their prerequisite learnings. Pretests and other forms of assessment of existing prior knowledge and structures are recommended here (as for number four above). Students, for example those experiencing difficulties moving from algebra to calculus, need help in acquiring what might be called organizing principles to facilitate "vertical" transfer.

Principle number eight was inspired by the works of Kurt Lewin and E. C. Tolman. These two theoretical "giants" stressed goal-directed and purposive learning analyses, respectively. Additionally, both stressed the value of considering learning at molar levels of specificity. Today researchers increasingly recognize the values to be derived from studying learning at various levels of specificity--moral, meso- and micro-levels. To the human ability to reason dialectically mentioned above, one adds the ability to reason intentionally and the fact that these intentions guide action and hence learning (Rychlak, 1979a). The work of Ference Marton and his associates

(Marton & Säljö, 1984), reveals the value, hitherto only dimly perceived, of the analysis of learning at two levels of specificity--surface and deep. Some students habitually memorize facts; others study for the "big" ideas; still others do both in varying degrees. Furthermore, the big ideas can help to organize and make facts meaningful through deductive reasoning even as they can be induced from the facts themselves.

Teachers have many lessons to learn here, perhaps the first being an increased awareness of the degree to which students are taught (and tested) over factual versus conceptual learning.

The ninth principle concerns environmental influences or extrinsic motivation. It is essentially broader in scope than the reinforcement principle (#3). Today, theories of motivation typically go way beyond the old intrinsic-extrinsic dichotomy to consider a wide variety of factors (personal, situational, and trans-interactive) which influence learning. I have listed some of the key concepts currently under investigation in the literature, including self-efficacy discussed above. This list would surely vary from one time to the next and according to the psychologist who draws it up.

What is a teacher to do in the face of all of this complexity? Since most "real" situations confronting a teacher are more complex than any of these models, they (the models) can still be regarded as attempts to aid the understanding of real-life complexities. Understanding the curvilinear relationships between anxiety or arousal and task performance can assist a teacher to seek optimum levels of student (and self) arousal for the tasks at hand, for example. Weiner's analyses of causal attributions in motivation is a

new and useful way to look at both teacher and student expectancy effects as they influence learning, it seems to me (cf. Farley, 1981; Humphries & Revelle, 1984; Spielberger, 1966; & Weiner, 1980).

The last (tenth) principle on the list concerns enhancing long-term retention of what is learned through overlearning--practice beyond that which is necessary for acquisition. Overlearning is well established both experimentally in laboratories and experientially in classrooms, so why tinker with it? Increasingly, from a variety of sources, meaningfulness is regarded as the cognitive key to retention. Thus in addition to practice, which clearly promotes rote learning and may allow for meaningfulness to take place, meaning is addressed directly. This is done through a number of ways noted above, including imagery (Pavio, 1971) and generative learning, but also through metacognition (Flavel, 1979) or encouraging student talk about and increase awareness of their own learning processes and cognitive structures thereby.

Among the tips for teachers that could be advanced here is to listen to students; question them about how they learn, study, and remember things; and try to find out not only what they know but how they come to organize their thoughts, study skills, and habits.

Much could be added to the revised list and the implications for teachers therefrom. If it stimulates others to do so, I should be pleased.

In conclusion, the organizing ideas or higher-order principles of the old list describe the learner as a responding organism acquiring new skills largely through contiguity, reinforcement, and practice. Cognitions and personality factors are largely absent or treated as being epiphenomenal.

The revised list retains some of the flavor of a responding student, but adds the ideas of teachers and learners as actively intentional originators of learning processes and outcomes. Adults, and progressively children, are taken to be able and willing to reason abstractly and dialectically about events in their internal and external environments, and given the modes of expression consistent with their personalities and cognitive styles, able to act accordingly, sometimes willfully, playfully, or responsively. This, it seems to me, represents real progress over, say, the last 20 years of psychological research and model building. The next couple of decades might prove to be even more exciting in terms of outcomes for education, given that we get to participate in them.

Finally, the revised list is ripe for amendation and criticism from the points of view of exclusiveness (or inclusiveness), varying levels of specificity, and usefulness. Nevertheless, it is advanced as a sort of guidepost to teachers and to trainers of teachers at all levels as a kind of progress report on the contributions that psychology can make to teaching and learning. One would expect that periodic updates to the revised list could serve as a kind of a barometer of the "educational" status of psychological research.

Table 1

Ten Principles of Learning (Listed with Main Proponents)

1. We learn to do by doing. (Guthrie)
2. We learn to do what we do and not something else. (Guthrie)
3. Without reinforcement there can be no learning. (Thorndike/Skinner)
4. Without sufficient readiness, learning may not take place, be inefficient, or even be harmful. (Developmentalists)
5. What a person learns depends upon that person's perceptual organization of the situation. (Gestaltists)
6. Overt practice improves learning and retention. (Thorndike/Underwood)
7. Transfer of learning increases with similarity between training and transfer tasks. (Judd/Osgood)
8. Learning is goal directed, molar and purposive. (Lewin/Tolman)
9. Environmental incentives direct learning. (Motivation theorists)
10. Practice past task acquisition produces overlearning which results in resistance to extinction. (Memory theorists)

Table 2

Ten Principles of Learning Revised in Accord with the Work of Contemporary Cognitive Psychologists

1. We learn to do by doing, by instruction in doing, by images of doing, and by observing others. (Bandura/Gagné)

2. What a person did previously in similar situations can be a good predictor of what they will do again, including the possibility that they will reason to alternative actions. (Rychlak)

3. Reinforcement can be important but does not seem always to be necessary to learning. Reinforcement effects are often subtle, nonobvious, covert, and relative to the individual and the situation. (Bandura/McKeachie/Nuttin)

4. Sequential readiness assumptions may hold for some simple tasks and for young children; however, adolescent and adult structures of knowledge and individual differences are often uneven and nonlinear. (Ausubel/DeBono)

5. A person's perceptions of self (including self-efficacy) and one's surrounding world (in dynamic interaction) influence every learning experience. (Bandura/Marton)

6. Rehearsal may aid learning, but it is often covert, occurring through imagery. Simultaneous activation of more than one brain center aids in generating learning. (Pavio/Wittrock)

7. Transfer increases with task similarity and the degree to which new learning may be "anchored" into existing cognitive structure. Transfer may be vertical in a hierarchy of task complexity. (Ausubel/Gagné)

8. Learning is often intentional as well as incidental, and may be analyzed at micro-, meso-, or molar levels, including differential ability to process information at surface and deep levels of meaning. (Marton/Rychlak)

9. Environmental incentives are differentially effective, depending upon personality factors such as learner (and teacher) anxiety, arousal, causal attributions, and self-efficacy. (Bandura/Farley/Humphries & Revelle/Spielberger/Weiner)

10. Retention is enhanced by practice and through meaningfulness which is achieved by a variety of means including imagery, metacognition, and generative processes. (Flavel/Pavio/Wittrock)

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# UNDERSTANDING AND REACHING ADULT LEARNERS

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First I want to tell you that I took very seriously what some of you said in your workshops, that space is very important. When you go into a classroom, how you organize it says something about you as a teacher. So when I came here yesterday with Ben to look at this hall, and found that I was to speak from the back, I said in a very mild, non-assertive way, NEVER! As you can see, we have rearranged the podium so that I am closer to you. Now we can see and react to each other.

I want to start by telling you a secret. Many years ago when I was at Wayne State University I wanted a sabbatical very much. It was very hard, in those days, to get a sabbatical. I hatched the following plan. I went up to my dean and told him that I was not doing a good job of teaching. To prove my point, I presented every bad evaluation that I had ever received claiming that they were proof of a needed sabbatical.

That experience started my search and my research in the area of adult development. In order to effectively teach, we need to learn something about the persons or groups with whom we interact. In this search and research about adult learners, the first question is: "What does it mean to be an adult?" and, "What is an adult learner?"

## The Heterogeneity of Adult Learners

I was having lunch several months ago with a former colleague of mine from another university. She had a Ph.D. from The University of Chicago and was now enrolled in a master's degree program. I said, "Tell me what it feels like to be an adult learner. I'm going to be making a speech on the

subject soon." She said, "Nancy, it's like being a bag lady. I was a professor at Howard, I have my Ph.D., but I carry two bags in the winter -- one for books and one for boots. I shuffle around, I hope a professor will invite me in to sit down for a minute. I have no place to get messages. I am not treated with dignity. I am required to do papers at the hour the instructor wants, how the instructor wants. I am no longer a person -- I am a bag lady." We must be very sensitive to this issue and realize that there is a paradox in the very words, adult student. Adult can denote being in charge (of course, we as adults know that isn't true), but it evokes a sense of mastery. "Student" evokes an image of one person learning from another, being dependent on another person. This is the paradox of the adult learner: someone who is simultaneously in charge and dependent.

But who is the adult learner? Is there such an entity? Many people answer this by categorizing the adult learner by age. Using age creates confusion. For example, if you look at any institution, you've got adult learners who are 40, 50, 60, 70, 80. In a given classroom you might have a mother, daughter, and grandmother each studying a particular course for the first time as we move into the three and four-generation family.

We are seeing a demographic shift in terms of generations that will no longer enable us to categorize by age; we will no longer be able to say a particular age group does, or thinks, or feels a particular way. We hear television shows; we read articles about stages in adulthood. Those popularized works, which tried to convince us that at a particular age we feel, learn, think, and behave in a certain way, are not based on the current demographic reality. Today there are so many loops in the system.

People have new loves at 40, 50, 60; people start school at various ages; people get renewed at different ages. There is no one age when you can count on something happening. You can count that a lot is going to happen to you, but it isn't age-graded.

And if there is any message that I want to leave with you today, it is that the age-graded system of thinking (that students think a certain way or adults believe a certain thing in the '30s and that's different than the '40s or '50s) is not based on the new data being collected on adult behavior.

So if we cannot hang our peg on age, what is it we can hang it on? I suggest that it is variability and heterogeneity. Some adult learners are fat, some are thin; some are dull, some are exciting; some are rigid thinkers, some are flexible thinkers. If you take a group of 80-year-olds or 70-year-olds and compare them with a group of 6-year-olds, you find that there is more variability as you age, not less. This fanning out in adulthood results from the different experiences all of us have as we age. That results in variability. To restate this point, if you give me a group of 50-year-olds you have told me nothing about them except that they are 50. You have not told me how they learn, you have not told me if they are learning, you have not told me if they are having their mid-life crises.

This leads to a fuller discussion of the variability in adult learners in terms of learning capacity, learning styles, transitions, and involvement in learning. In other words, I want to look at variability from a number of points of view as the basis for our understanding adults and then as the basis for us doing something with adult learners.

The first step is understanding the learning capacity of adults. Have any of you ever worried about your capacity? Have any of you ever begun to think that there was something diminishing, that maybe you weren't remembering things the way you used to? I see lots of "yes" nods. Well, let me tell you, you've probably had diminished capacity for years. It's nothing new. We have been losing our brain cells for years. But we have so many surplus brain cells, we do not need to focus on the ones we're losing. So, you and I have surplus cells that we don't know what to do with. Isn't that exciting?

Earlier I said age is not the critical variable, and yet all of us in this room probably think that age influences learning capacity -- that the older you get, the less you'll learn. We further assume that there is a decrease in certain kinds of learning, like speed, while there is an increase in a certain kind of wisdom and problem-solving. If we believe that about ourselves, we probably believe that about our students, and we will consciously or unconsciously behave as if we believe it.

Let's examine some data which contradicts this assumption. Melvin Kohn of N.I.M.H. has conducted one of the few longitudinal research studies of cognitive flexibility and capacity over time. For those men and women who were in jobs defined as substantively complex, their cognitive capacity increased. On the other hand, for those men and women in substantively uncomplex job, their cognitive flexibility decreases.

The data show that people don't become duller and dimwitted any more than they originally were. So, if you are a dimwit now, you will probably always be one. But if you are exciting intellectually, and doing interesting things, and you're in complex jobs where a great deal is

required of you, you will get better. So those of you who organized this conference and are in highly complex jobs, just think about how smart you're going to be in another decade. The message is that learning capacity does not depend on your chronological age, it depends on you -- the setting in which you work, the life you lead.

Now a word about another kind of variability, our style of learning and our style of teaching. This is exemplified by David Kolb's work. He has demonstrated different styles of learning and teaching. Some of us learn in concrete ways, others learn through experience; others reflect, they like to watch. Others are abstract conceptualizers, and others active experimenters.

It was not until my son was in football that I really learned what Kolb meant by these different styles. First of all, I think there must be a way to get paid back for our hatreds -- I've always hated football, so naturally I have a son who is in football. And I've always hated football coaches because I thought they were mean to my son; they kept making him work harder and harder. But as I was preparing for this speech I realized how much I learned from Mark's coach. He taught Mark and the other boys by using all four modes of learning. They had the concrete experience of being hit on the head and playing with a concussion. They reflect by watching videotapes of the game and discussing what they did that was bad and what they did that was good. Then they engage in abstract conceptualization. They learn plays and they study them at home and they conceptualize what the plays are, and they they do active experimentation -- they go back and they practice and they get hit on the head some more. I have become aware that the football coach knows more about teaching than I

do, because I must tell you the truth, I do not use all four methods in my teaching. You see, I'm still looking for that magical sabbatical where I'll learn to teach. But it made me think that I have got to increase my repertoire.

Kolb is not alone in delineating types of learning. Perry, of Harvard, studied the way students think. He found that some are dualists and see the world in either/or terms. Others see the world in relativistic terms. Whichever typology you use, the message is similar -- it is variability. People don't learn and people don't teach the same way.

Thus far, I have discussed variability from the point of view of capacity. I've looked at it from the point of view of learning styles. Now I want to look at it from the point of view of what triggers our return to learning. Is there one reason we should go back, or are there many? In a study conducted by the College Entrance Board, reasons why adults return to school were examined. They returned because they were experiencing either a career or family transition. They didn't return because they wanted to become better people. Women primarily returned for family transitions and secondly for career, and men primarily for career transitions followed by family transitions. For example, we are all experiencing, in this room, multiple transitions that prompted our attendance at this conference. Just because people's transitions trigger a return to education, they are not at the same point in readiness for learning. So, we have another example of variability -- readiness to learn. I suggest that readiness for transitions can be assessed. In fact, in my book, Counseling Adults in Transition (Springer Publishing Company, N.Y., 1984), I outline a model explaining the factors which predict readiness for a transition. Most recently we have developed a Transition Readiness Scale, in which you can look at people approaching

any transition, and see the different degree of readiness for student one, two, three, four, and five. So to say that people are in transition tells you nothing. The question is, are they ready to learn?

There is yet a fourth aspect to this discussion of variability for the adult learner: What factors hinder the adult learner's return to school or new learning? Pat Cross -- most of us know her book, Adults as Learners (Harvard University Press, 1982) -- differentiates three factors that keep us from learning: dispositional factors, institutional factors, and situational factors.

Dispositional factors would be the kind of self talk we do. "I'm too old to learn." "I'm too old to go to medical schoo." "I'm too old to take up physics." I have a disposition that tells me I cannot learn how to fix cars. I cannot learn this, and I will not learn it. So don't even teach it to me. If we think we are too old, if we think that we are too fat, too whatever to do something, then the chances are we won't do it. So we all have these dispositional factors that keep us from learning.

Then we have what Cross identifies as situational barriers. To illustrate the point, let's look at those in the middle years who are kin-keepers -- that is they are caring for kin. They are caring for older kin. That doesn't mean that everybody's older parent needs care, but some do need care. But demographically there is an enormous increase in the number of women who care for in-laws, and older parents in addition to young adults who are returning home because they cannot afford to have their own apartment. This is a situation that can easily keep someone from participating in activities. You don't have the time to have a full-time job, take care of yourself and two generations, and learn. As the men's movement takes over,

many men may start becoming kin-keepers. This might relieve women. I make this point only to say that it is a situation that will preclude many from returning to school.

We have looked at dispositional and situational barriers. Now a word about institutional barriers. Does the institution accomodate adults? Is there flexibility in scheduling? Is there flexibility in fellowships for part-time students? Are secretaries on duty after 4:30? What are the institutional policies and practices that make it either possible or impossible for adults to return?

If I were going to write a popular book today, I would call it Surprise. Because that is really the adult experience. We are full of surprises.

The way you are today in your love life, in your work life, in your playing and in your community is not necessarily the way you're going to be the next year or the year after. There's lots of change in your life and my life. We cannot categorize ourselves.

## Strategies For Working With Adult Learners

Now that we know about adult variability, what do we do about it? This is a practical conference. We are supposed to improve our practices as a result of being here. You are expected to go back and justify your four days here and show how you are not only a better person, but your students are really going to benefit from you having attended this conference.

First of all, I want you to think for a moment about the word, Chilly -- the chilly classroom. Bunny Sandler of the American Association of Colleges, has studied the degree to which the classroom climate is chilly for women. I want you to think for a moment of every time in the past year when you have

made the classroom chilly for an adult student and every time you've made it warm. You notice I don't say either-or. I assume all of us do "good" things for people. And I also assume that inadvertently we all do "bad" things. We need to begin thinking about ways we have made the classroom climate chilly for adults and examples of how we have made it comfortable--not hot--but comfortable for adults.

Part of the solution rests with our basic attitude about aging and adult learners. You will know that you are free of age bias when you go up to somebody like me and say, "Gee, you look terrific. I haven't seen you in ten years. Your hair is so gray and you've got new wrinkles." We don't say it to each other because we are so afraid of aging in this culture. The biggest compliment you can give to a woman in this culture is "You look great, you look so young. What have you done?" Our attitude about our adult students and aging is the most basic thing that we work on. I cannot tell you how to get over age bias. I can simply tell you I know we should.

My telling you not to be age biased is not enough. What about some more concrete things we can do? What can we do in our classrooms? I think of the adult student who said she feels like a bag lady on campus, with no office, no desk, just bags of books and boots. In addition, she feels like a child. She's in her fifties and in class she doctors the doctor and they first-name her. Are you so important that you are "Doctor" and the adult students who know more about life in other areas than you do are called by first names? That's a small thing. But when I ask you to think about what you do that makes a classroom chilly, this might be an example of something that really can put somebody down. We can begin to get very concrete about what we do and what we do not do that makes adults feel respected and honored.

Another thing we can do to make this classroom climate comfortable is to take very seriously the work of David Kolb, who claims that people have different learning styles. Even though I knew this, I keep teaching the same way.

But I tried something new this semester. It worked so well I kept thinking, how come I didn't do that years ago? Why has it taken me so long? Let me share with you what I did. I teach a course, "Career Development Through Life." The first half of the class deals with theories of career development. By taking David Colb's work seriously, I taught the theories in many different ways to accomodate different learning styles. First, I had my students write a career autobiography of their own career development. Then I had them apply reflectively what they read about theories, what they listened to about theories, to their own career biography. They then saw a video-tape of four major career development theorists arguing about their theories. And then I had them experience the theories through what we called "the great debate." Each class participant was assigned to one of four teams. Each team represented a different theoretical position. The teams debated.

In addition to presenting material in different ways, we can also experiment with different technologies. At the American Association on Higher Education annual meeting, many sessions were devoted to telecommunications. These panels dealt with the role of faculty. As a result of these meetings, I worked on the development of a television-assisted course with the International Consortium for Telecommunications in Learning. The course, The Adult Years: Continuity and Change required working in a new way with people. I was in charge of an interdisciplinary team from sociology, history, psychology, and the humanities. We wrote a book and supplied the

content for eight television programs.

I want to end with a discussion of what appears to be most important to adult students. We just completed an evaluation of adult students' reactions to nontraditional education for The Council for the Advancement of Experiential Learning. A theme kept coming through the interviews, and it was the theme of mattering. They felt they mattered to an instructor, to the institution, to the program. This has stimulated research into mattering. Morris Rosenberg, a sociologist at the University of Maryland, suggests that mattering is a motive that has been overlooked. In comparing delinquents and nondelinquents, he found that nondelinquents feel they mattered to teachers, to parents, to significant others who are not delinquent. Rosenberg further suggests that mattering is important to retirees. If you retire and no longer feel you matter, you are not going to be very adjusted. We contrast this with the midlife kin-keepers--they matter too much sometimes and top administrators who matter too much. Mattering appears to be an important notion, and we are beginning to study the degree to which adult learners feel they matter to those of us in higher education. That is, the degree to which they feel they are appreciated; the degree to which they feel they are missed when they are not in class; the degree to which they feel that their success is a reflection on the professor. We will soon have a Mattering Scale that can be easily administered to learners. It will help identify areas that need improving in order to make their constituencies feel they matter. You know how important it is for you to feel you matter -- when you come to a conference, when you go to a workshop, when you teach a course. You want to feel you matter, that you are appreciated by your boss and by the people you supervise. And if it is that important to you, imagine how important it is to adult students. So, whatever the particular

technique or the trend or the attitude is, if basically you can make your adult learners--who come in all sizes, shapes, colors, ethnic identifications, religions--if you can make them feel they matter, then you have been a success. Thank you.

N. K. Schlossberg
July, 1985

# UNDERSTANDING AND REACHING ADULT LEARNERS

**UNDERSTANDING**

- The Adult as Student:
  A Paradox
- The Adult as Learner:
  Capacity
  Style
  Motivation
- The Adult as Adult:
  Different Perspectives
  Transitions

**REACHING**—through:

- Formal Curriculum
- Informal Curriculum
- Changed Perceptions

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